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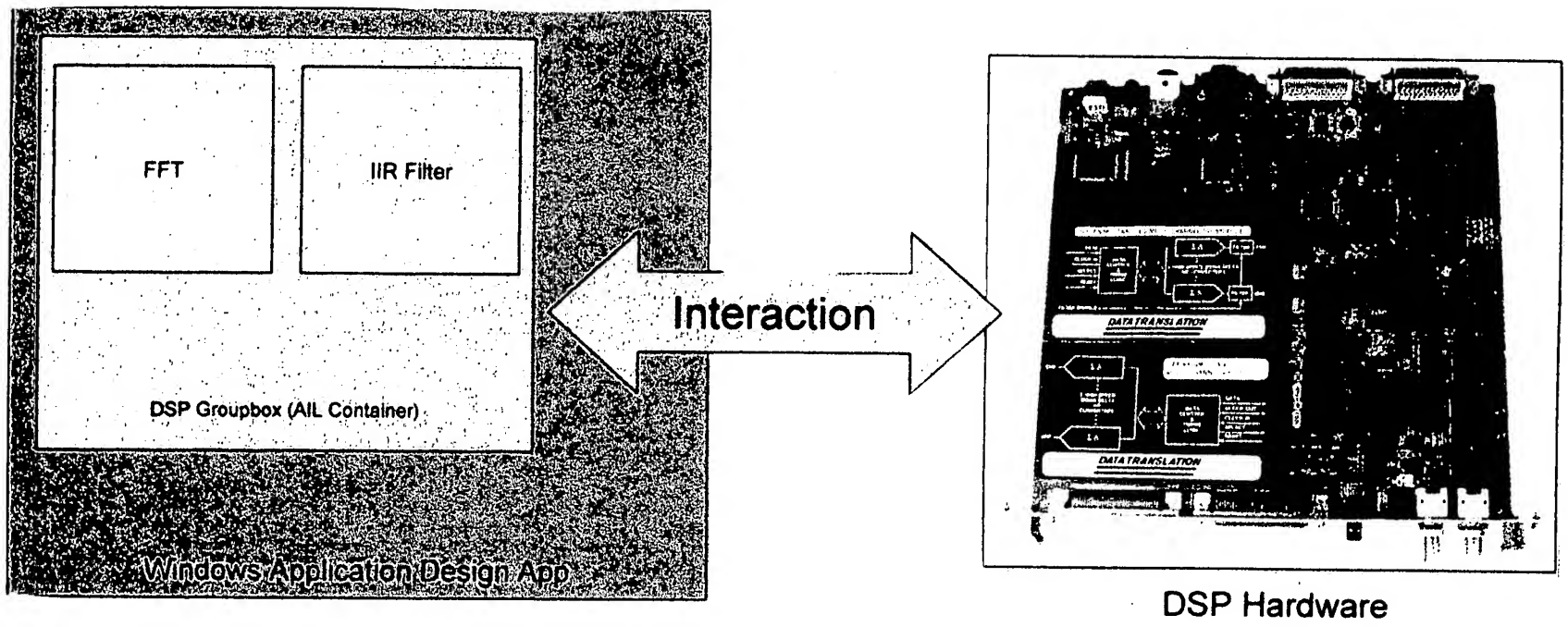

FFT
IIR Filter
DSP Groupbox (AIL Container)
Windows Application Design App
Interaction
DATA TRANSLATION
DATA TRANSLATION
DSP Hardware

FIG. 1

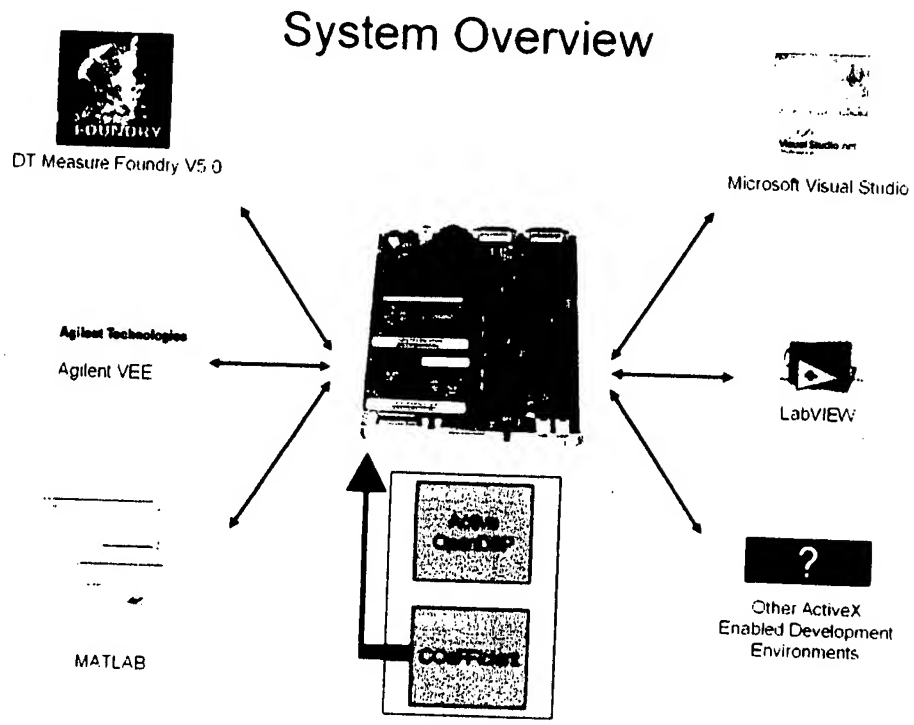

System Overview
DT Measure Foundry V5.0
Microsoft Visual Studio
Agilent VEE
LabVIEW
MATLAB
?
Other ActiveX
Enabled Development
Environments

FIG. 2

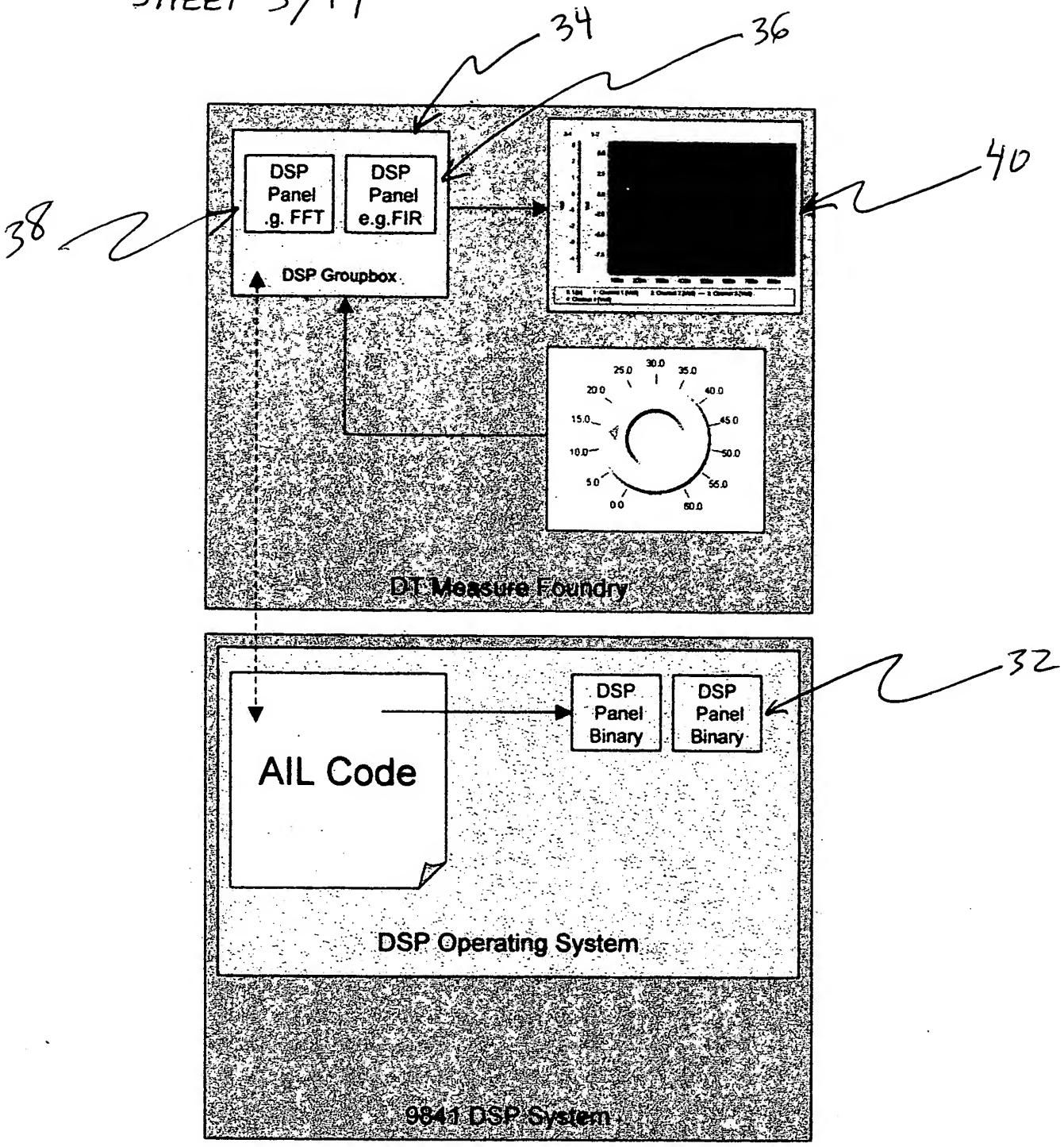

34
36
40
38
DSP Panel .g. FFT
DSP Panel e.g.FIR
DSP Groupbox
DT Measure Foundry
32
AIL Code
DSP Panel Binary
DSP Panel Binary
DSP Operating System
9841 DSP System

FIG. 3

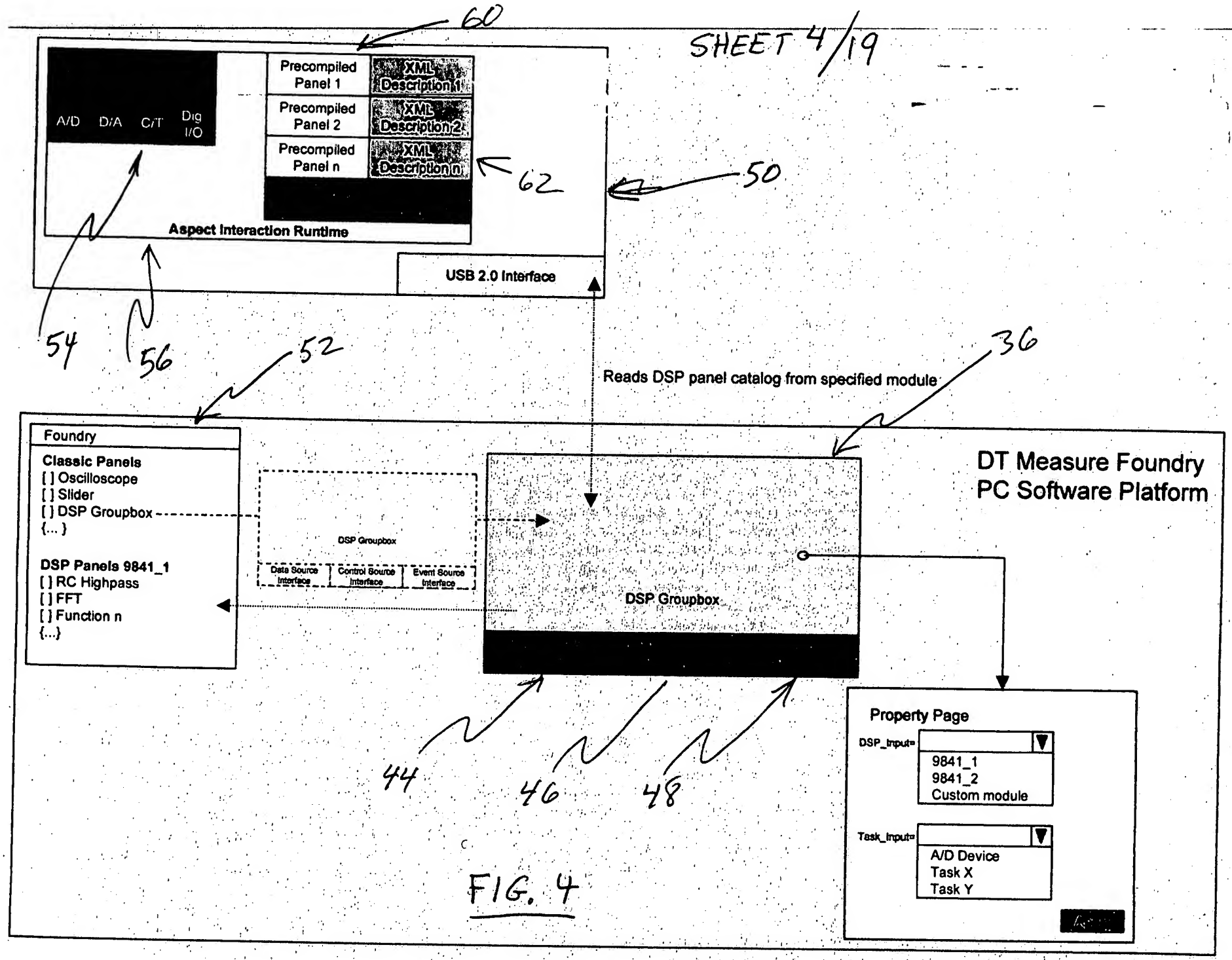
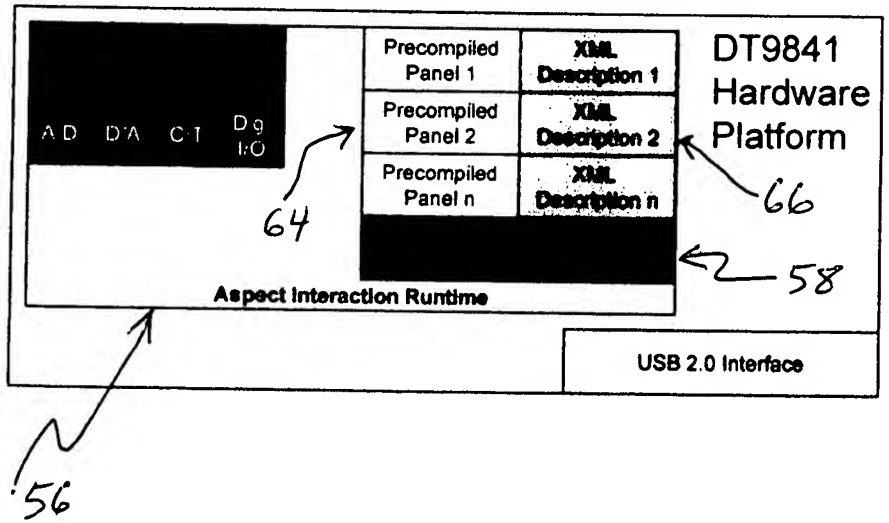

60
A/D
D/A
C/T
Dig I/O
Precompiled Panel 1
XML Description 1
Precompiled Panel 2
XML Description 2
Precompiled Panel n
XML Description n
62
50
Aspect Interaction Runtime
USB 2.0 Interface
54
56
52
36
Reads DSP panel catalog from specified module
Foundry
Classic Panels
[ ] Oscilloscope
[ ] Slider
[ ] DSP Groupbox
{... }
DSP Panels 9841_1
[ ] RC Highpass
[ ] FFT
[ ] Function n
{...}
DSP Groupbox
Data Source Interface
Control Source Interface
Event Source Interface
DSP Groupbox
DT Measure Foundry
PC Software Platform
Property Page
DSP_Input=
9841_1
9841_2
Custom module
Task_Input=
A/D Device
Task X
Task Y
44
46
48

FIG. 4



DT Measure Foundry
Start Procedure

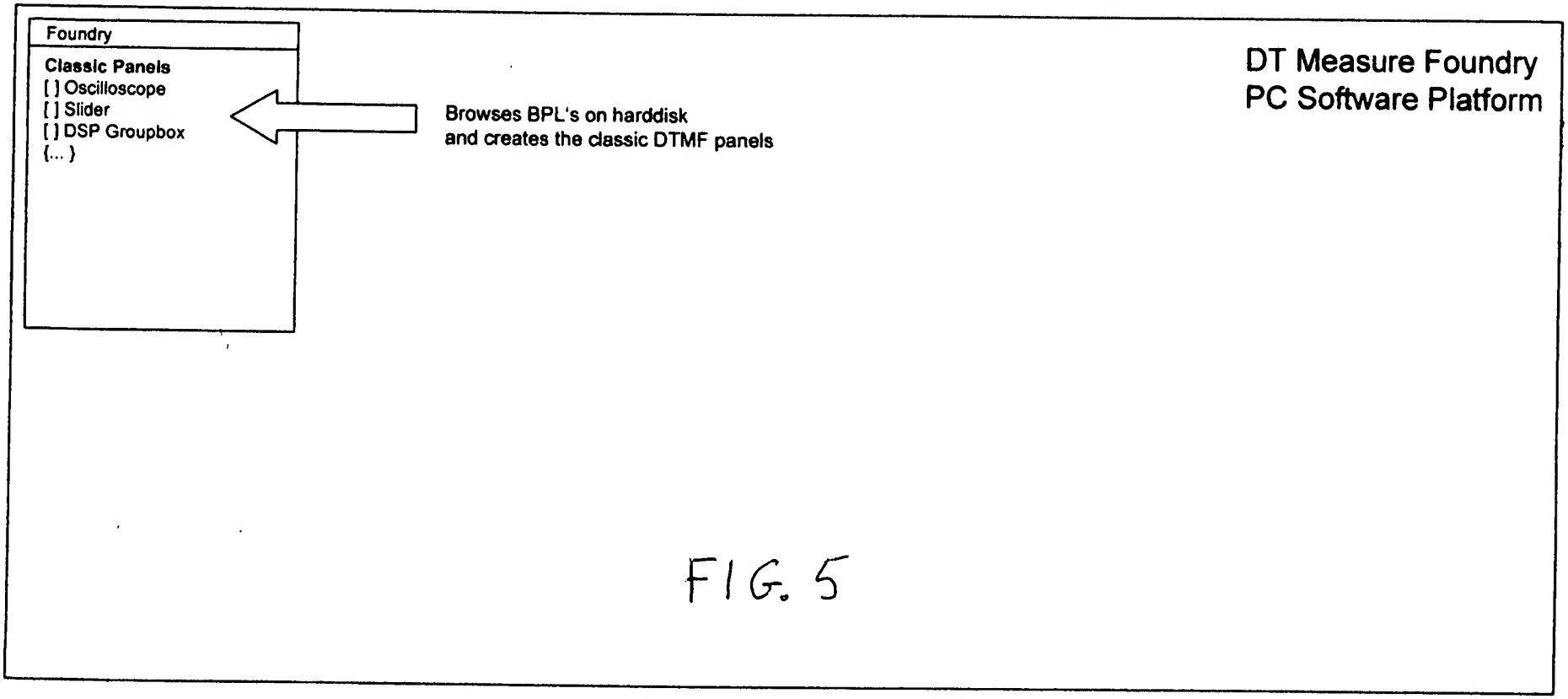
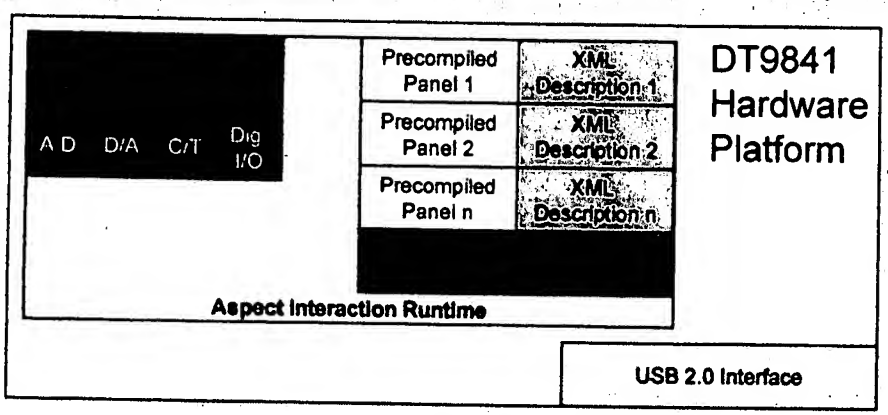


FIG. 5



Putting a DSP Function Panel on a DSP Groupbox

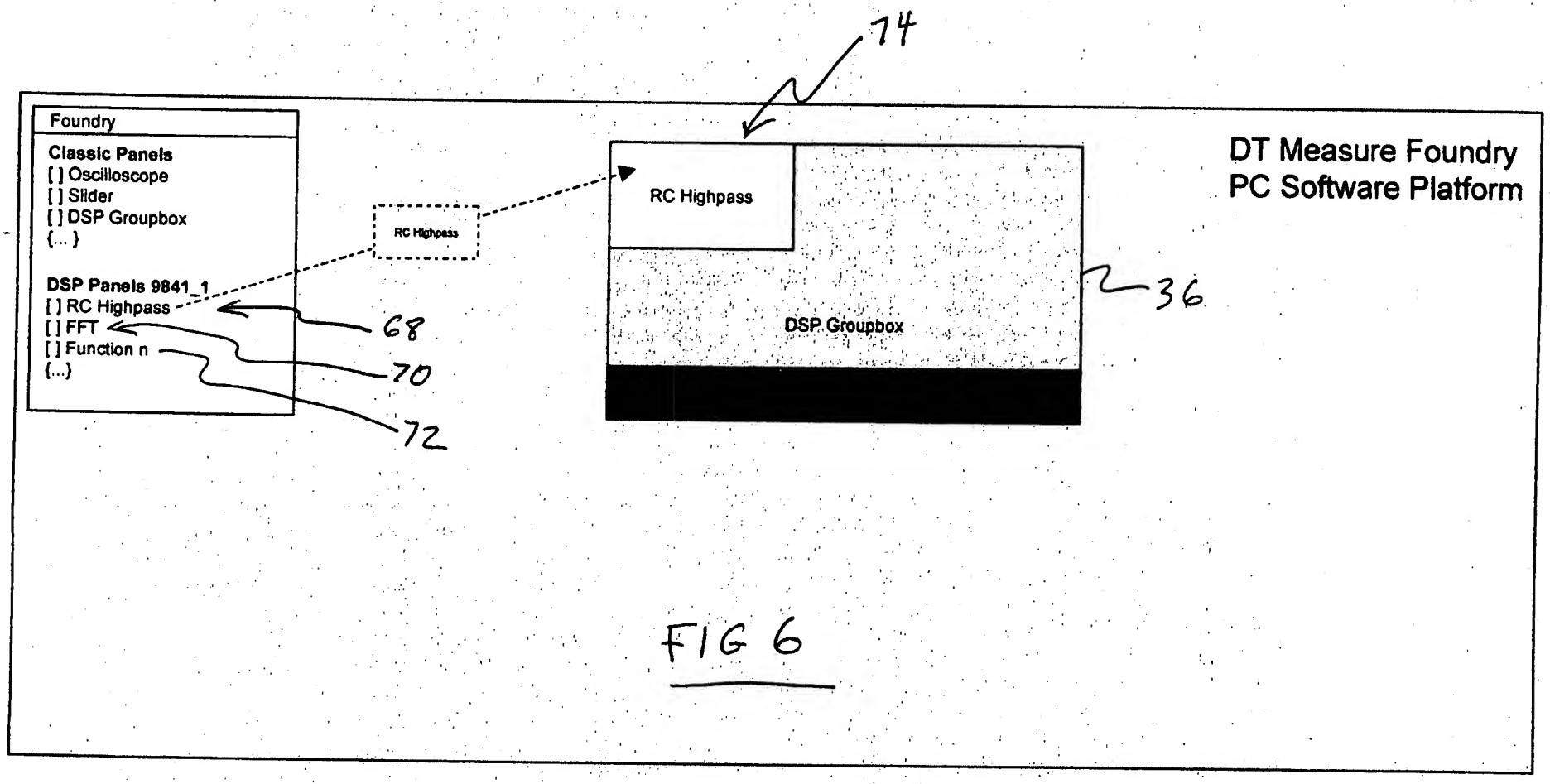
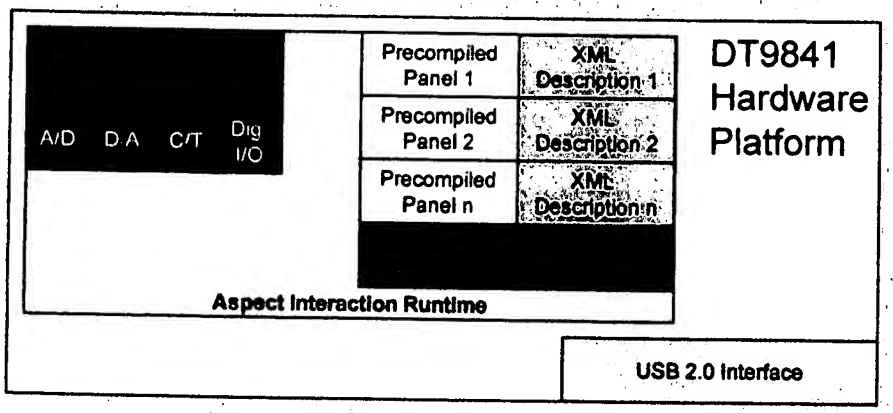


FIG 6



DT Measure Foundry
Open the generic
Property page

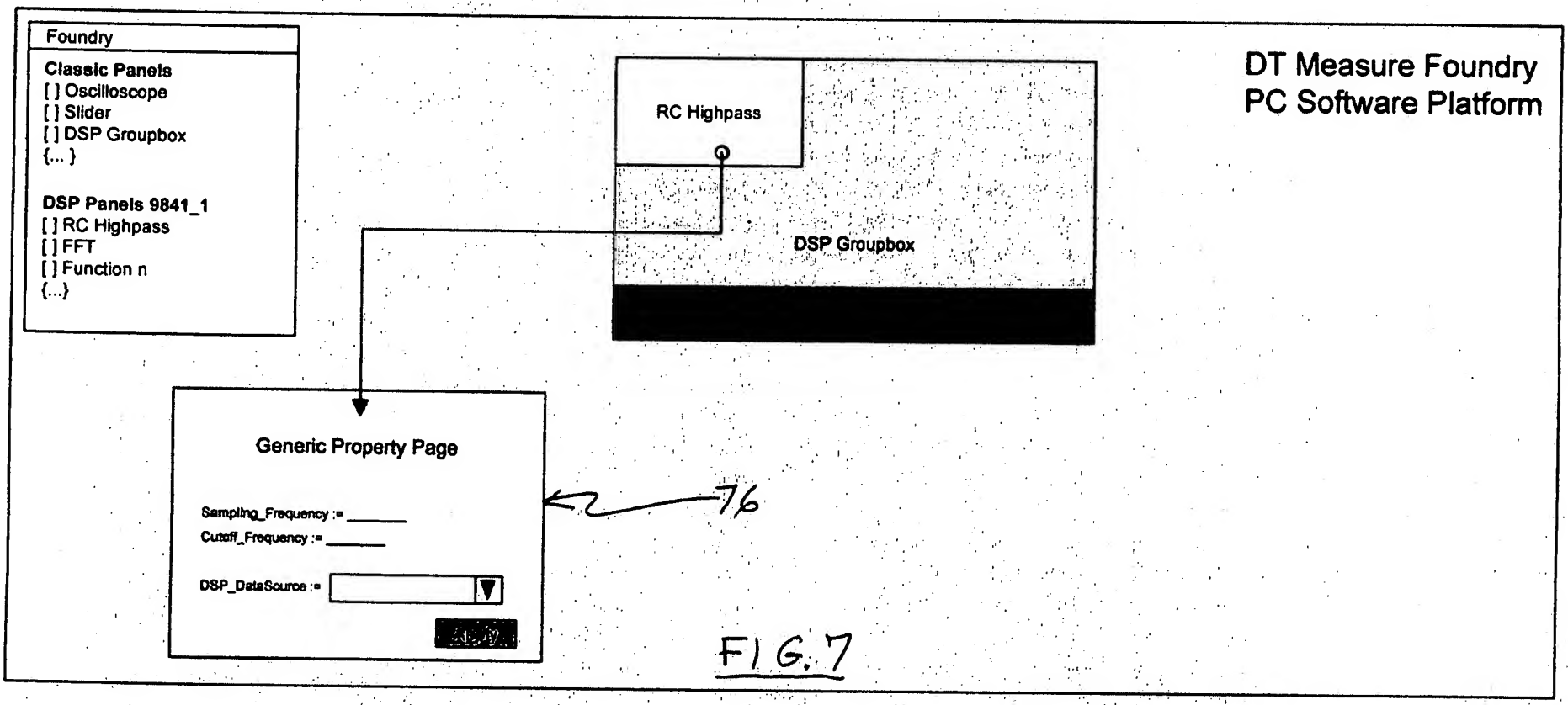
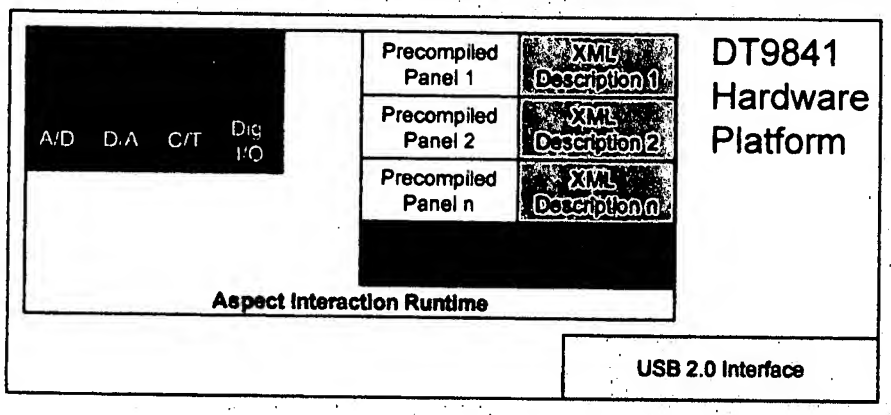


FIG. 7



DT Measure Foundry
Send the configuration
Data back to the
component

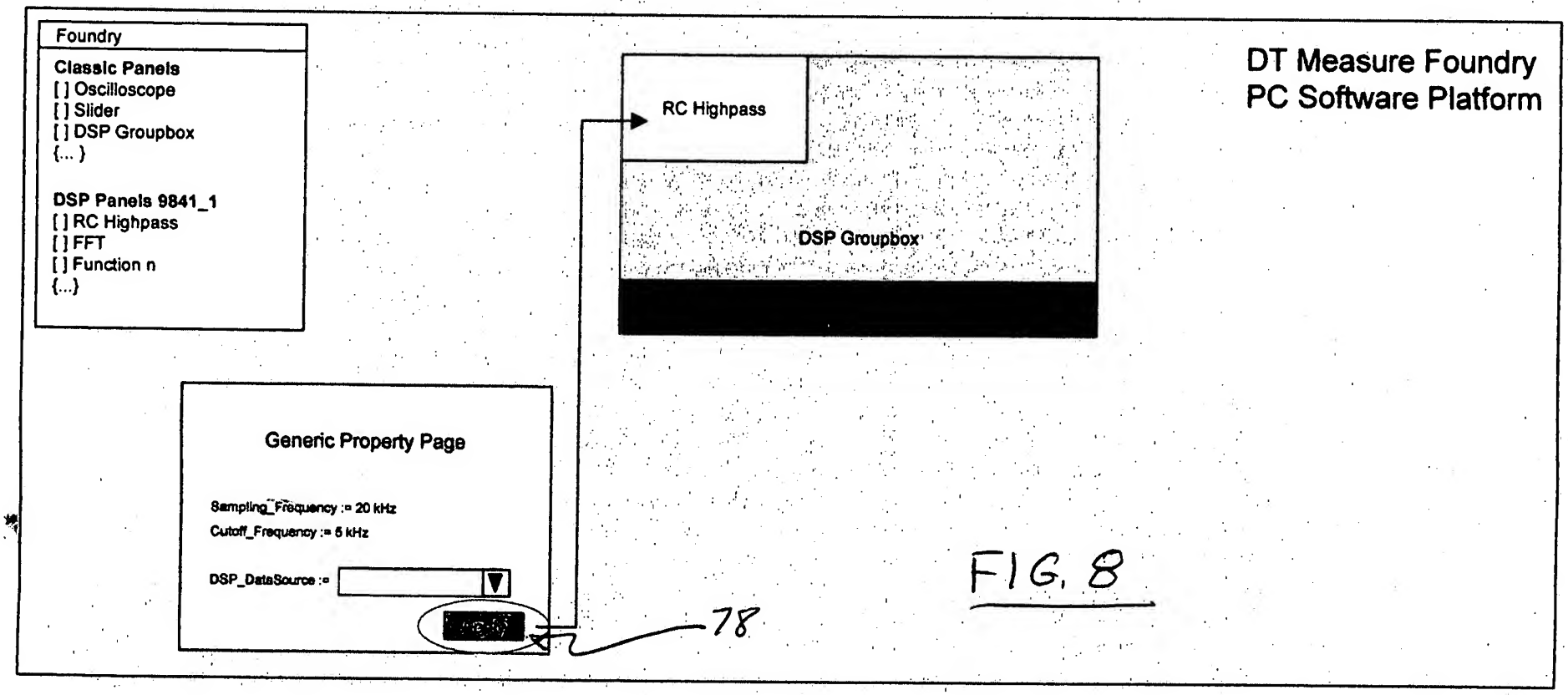
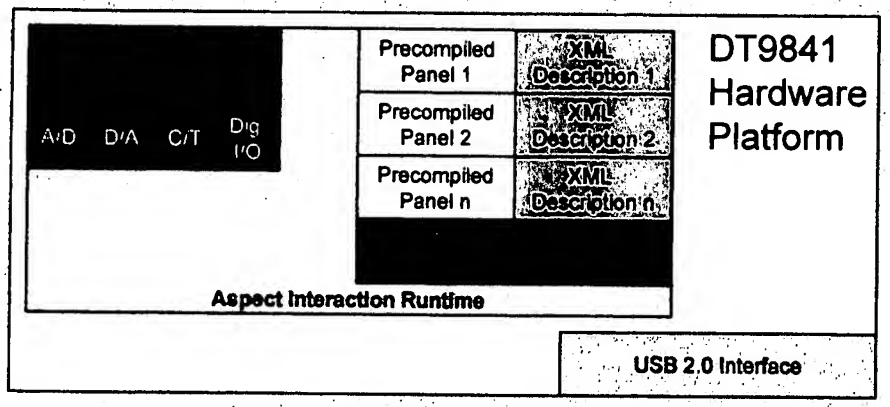


FIG. 8



DT Measure Foundry
Putting a DSP Function Panel

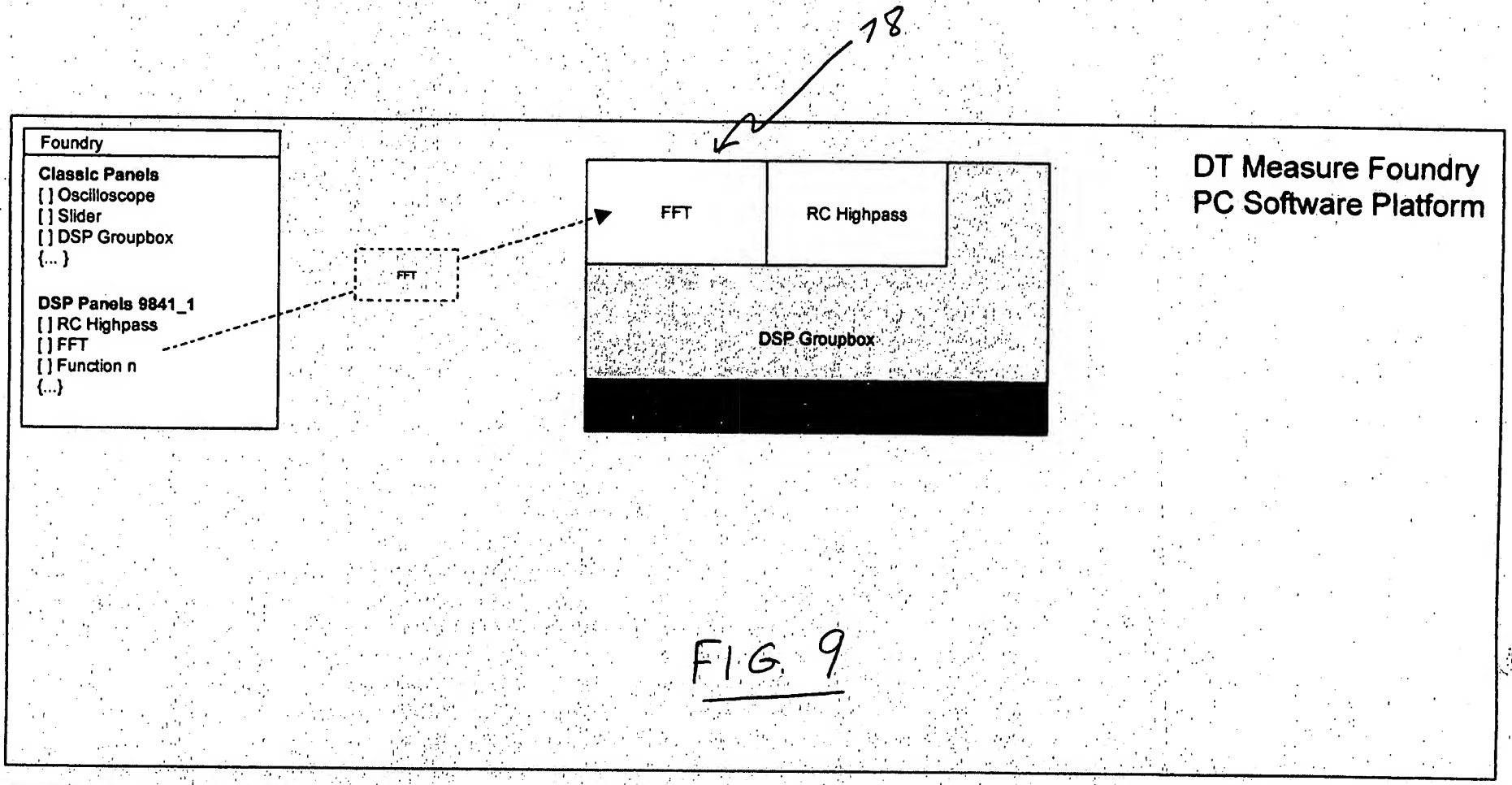
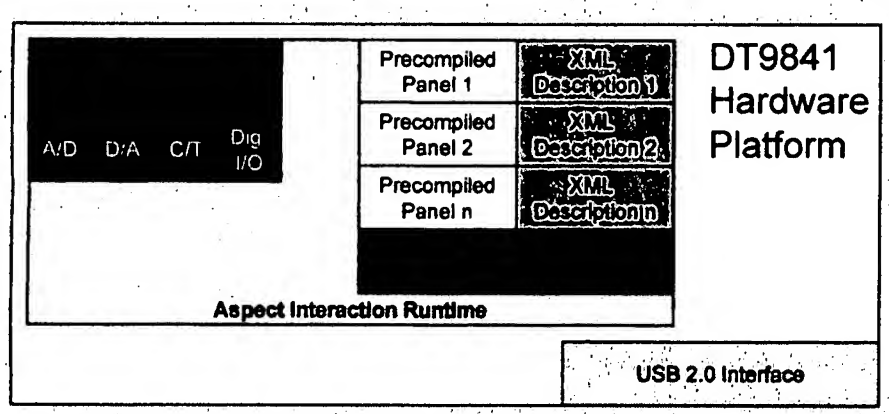


FIG. 9



DT Measure Foundry
Add Classic
Component and
Configure

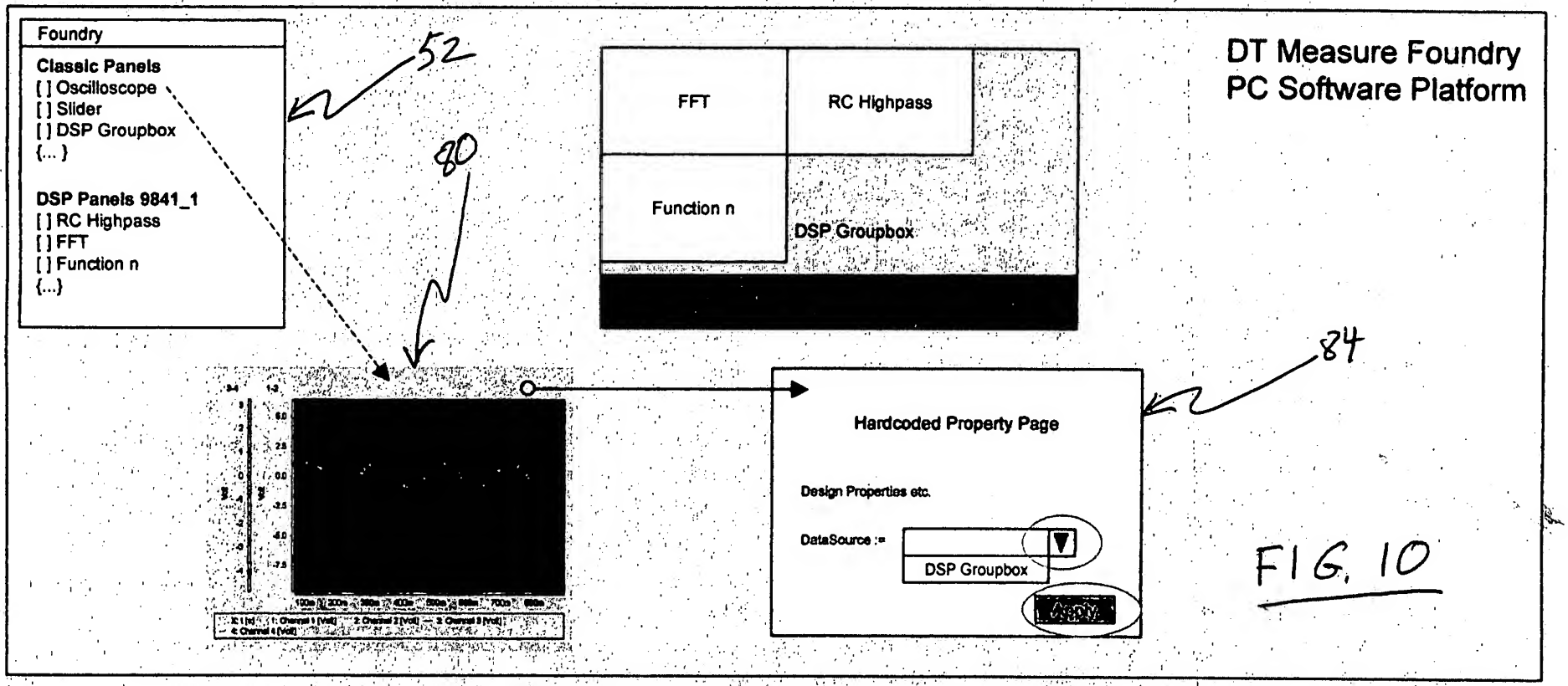
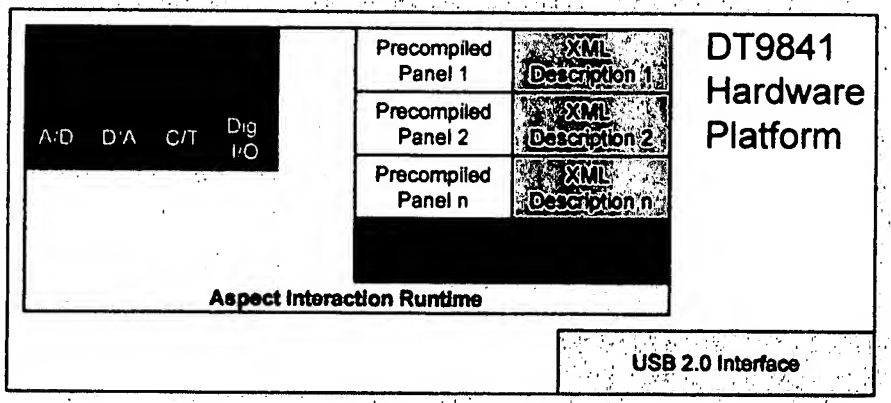


FIG. 10



DT Measure Foundry
Add Classic
Components

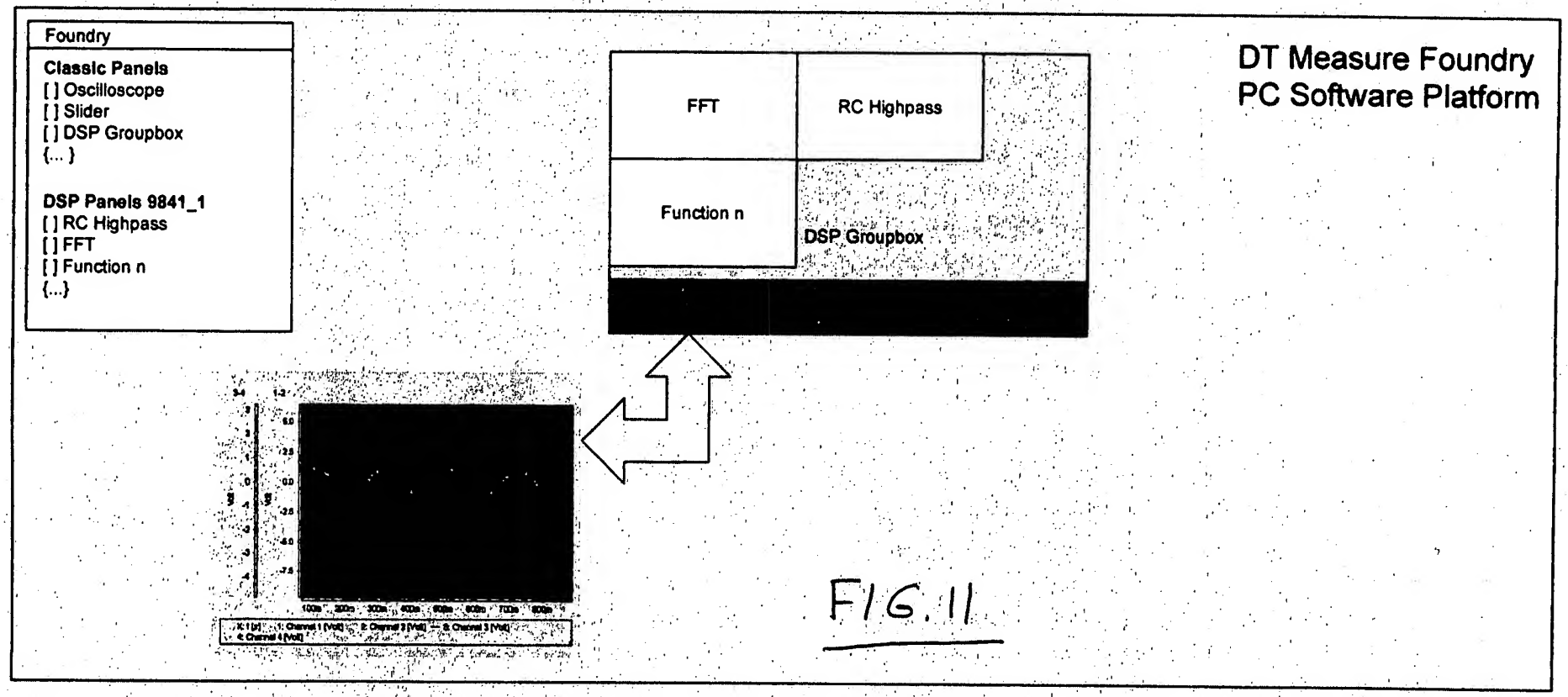


FIG. 11

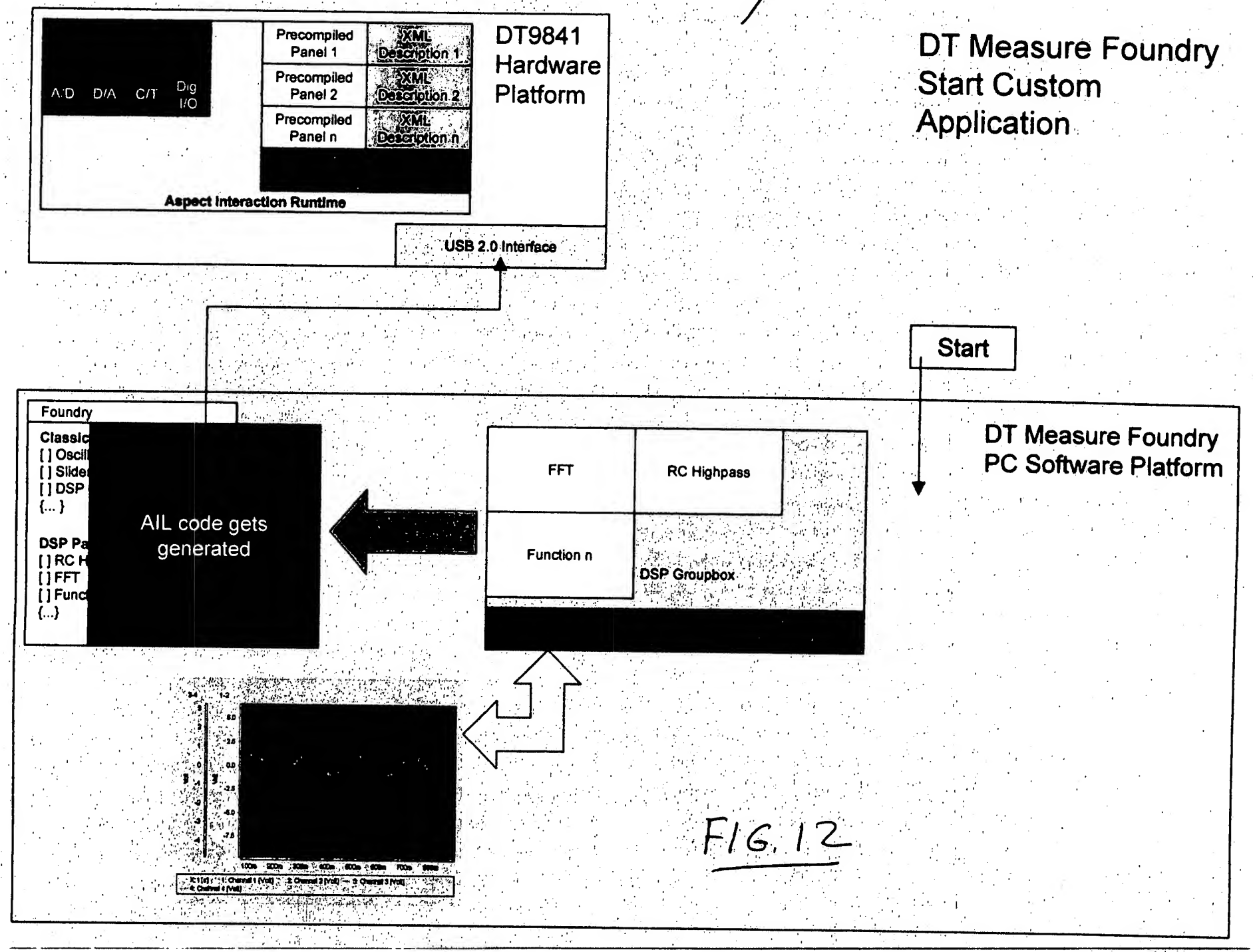
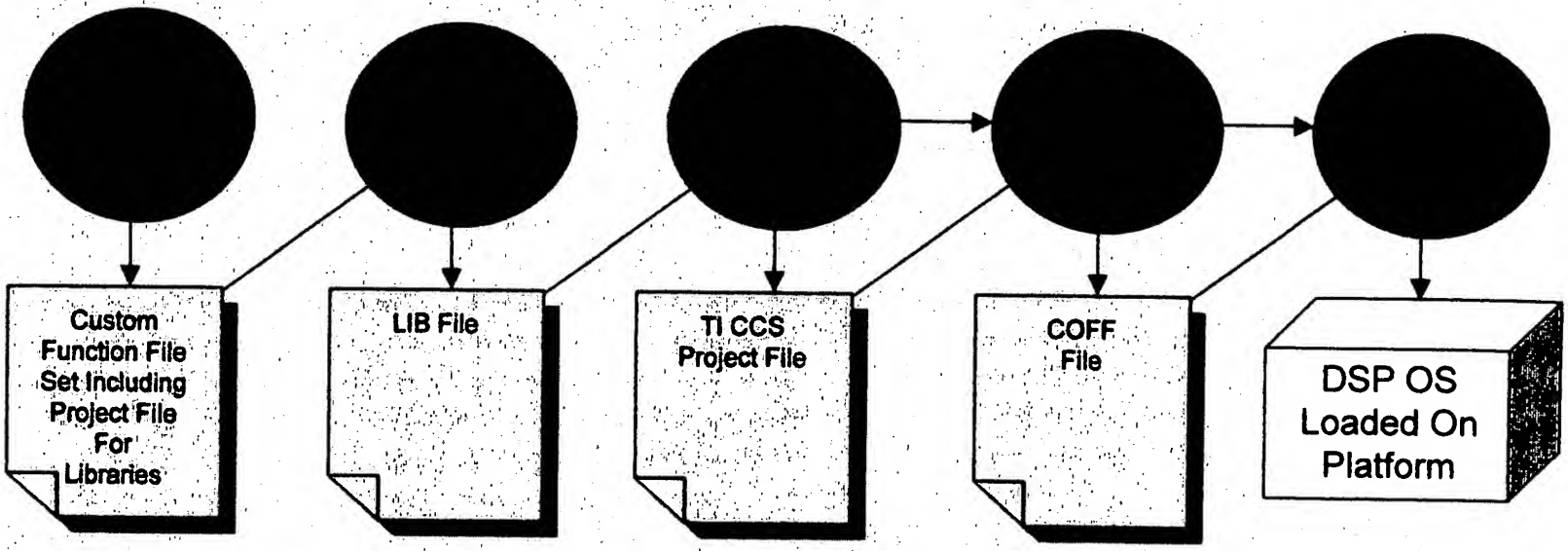

A/D
D/A
C/T
Dig I/O
Precompiled Panel 1
XML Description 1
Precompiled Panel 2
XML Description 2
Precompiled Panel n
XML Description n
Aspect Interaction Runtime
DT9841 Hardware Platform
USB 2.0 Interface
DT Measure Foundry Start Custom Application
Start
Foundry
AIL code gets generated
FFT
RC Highpass
Function n
DSP Groupbox
DT Measure Foundry PC Software Platform

FIG. 12

Overview



5 Steps are necessary to build a custom 9841 operating system

Each step can be done manually or by using wizards

FIG. 13

Create Custom DSP Panel Part I

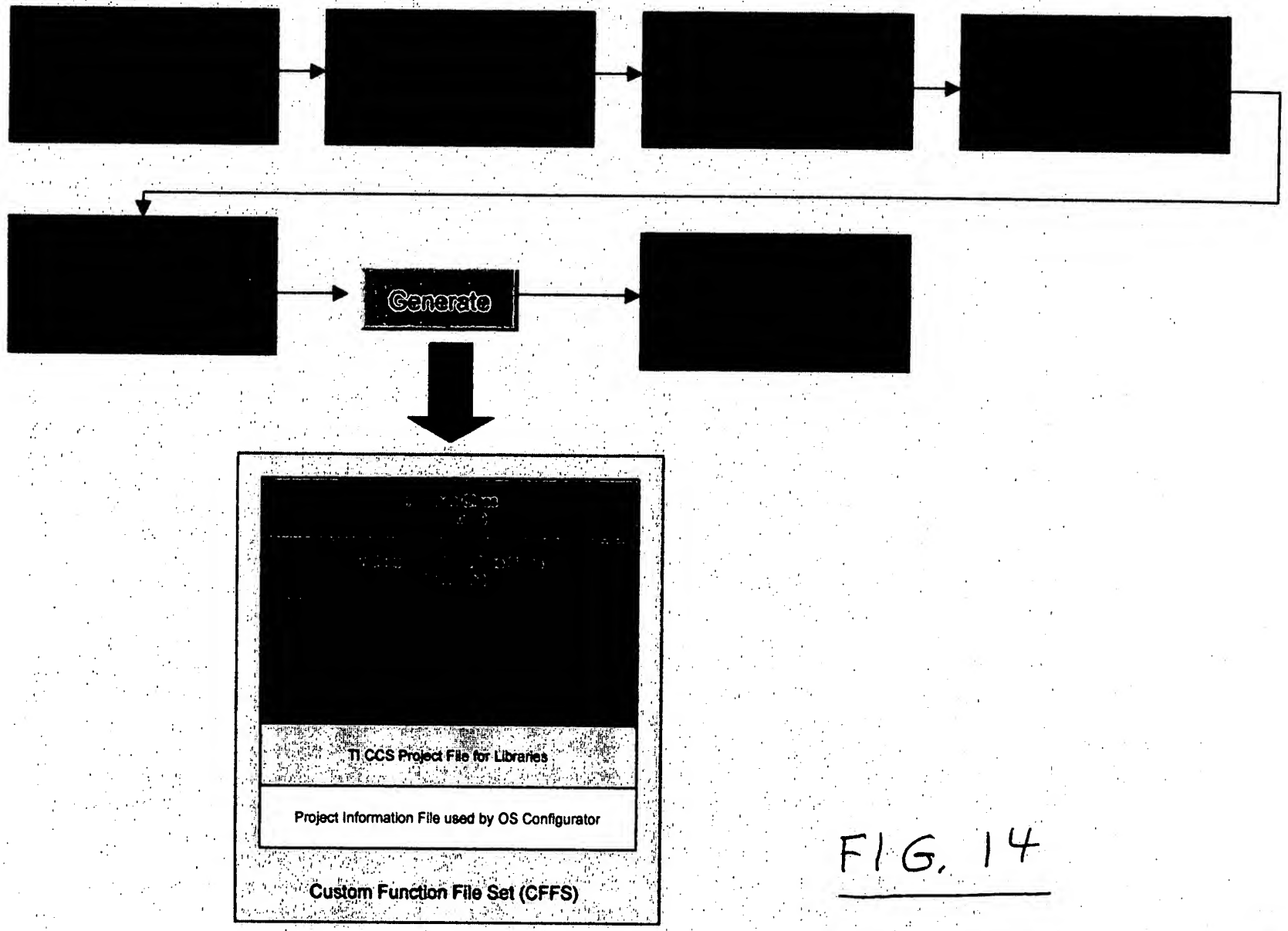


FIG. 14

Create Custom DSP Panel Part II

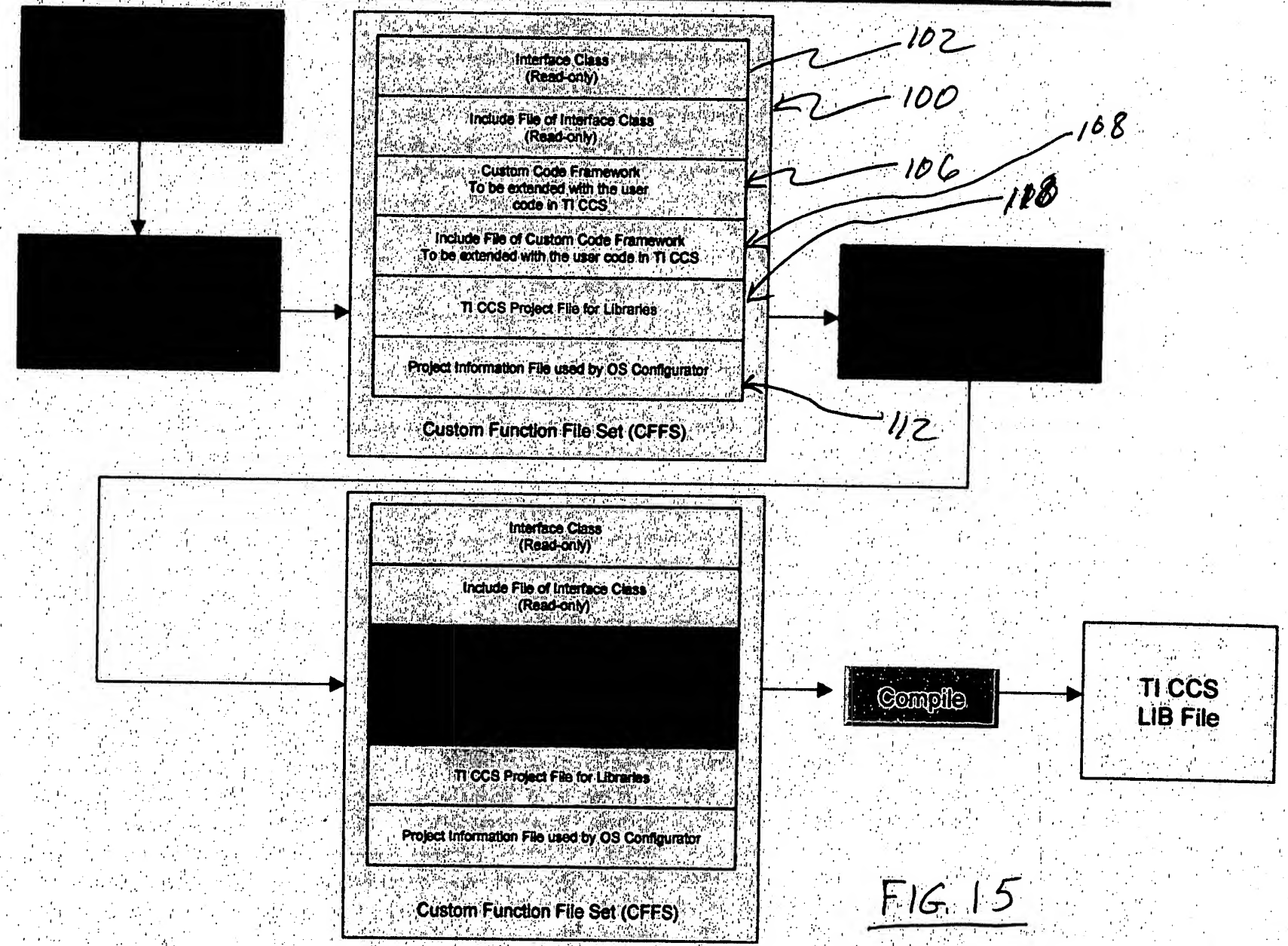


FIG. 15

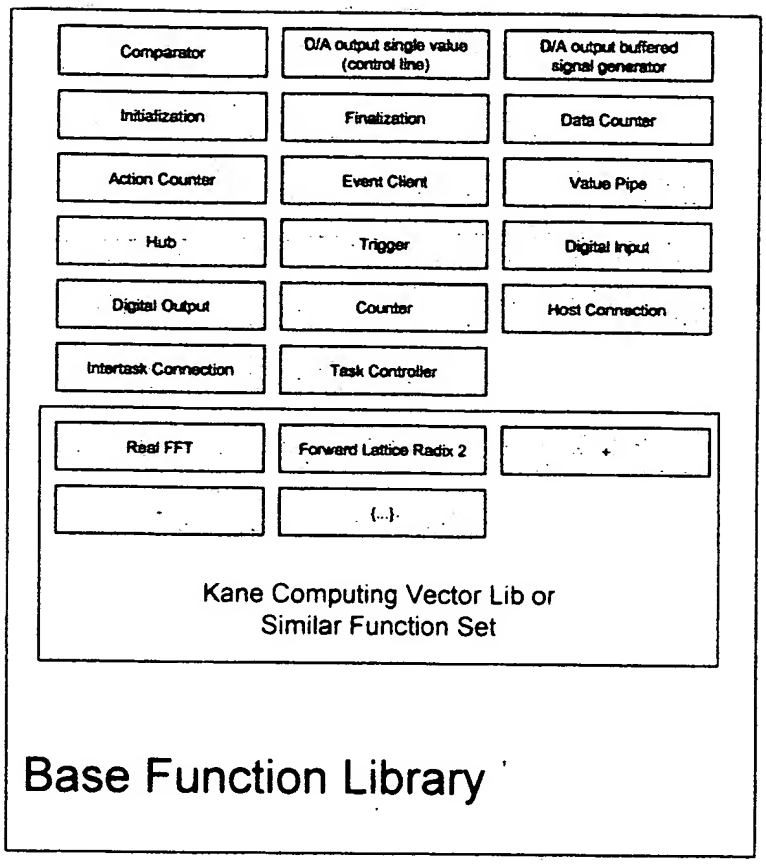

Comparator
D/A output single value (control line)
D/A output buffered signal generator
Initialization
Finalization
Data Counter
Action Counter
Event Client
Value Pipe
Hub
Trigger
Digital Input
Digital Output
Counter
Host Connection
Intertask Connection
Task Controller
Real FFT
Forward Lattice Radix 2
+
-
{...}
Kane Computing Vector Lib or Similar Function Set
Base Function Library

FIG. 16

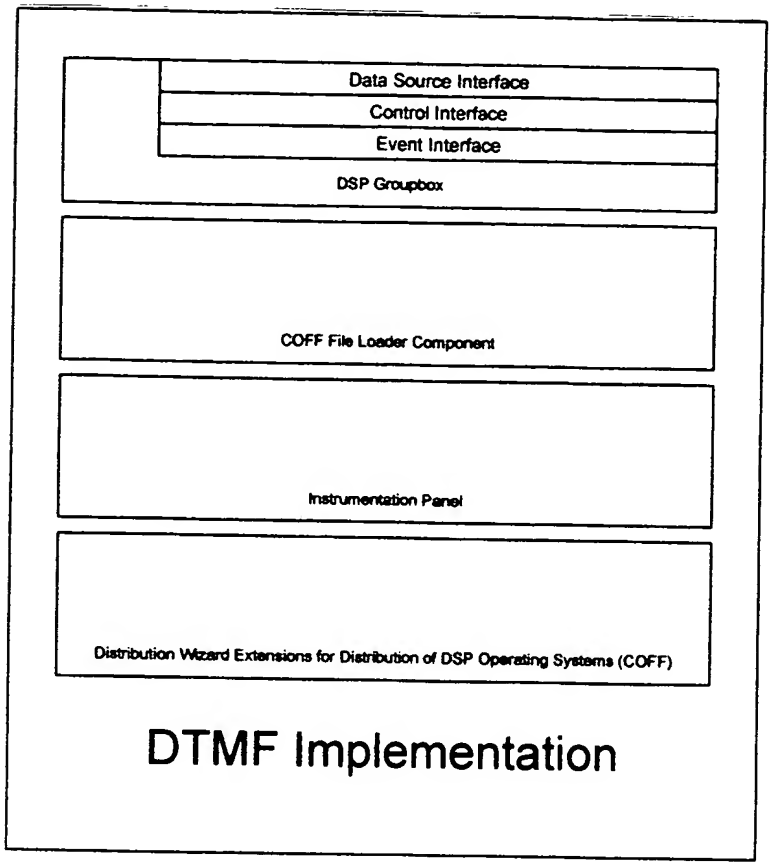

Data Source Interface
Control Interface
Event Interface
DSP Groupbox
COFF File Loader Component
Instrumentation Panel
Distribution Wizard Extensions for Distribution of DSP Operating Systems (COFF)
DTMF Implementation

FIG. 17

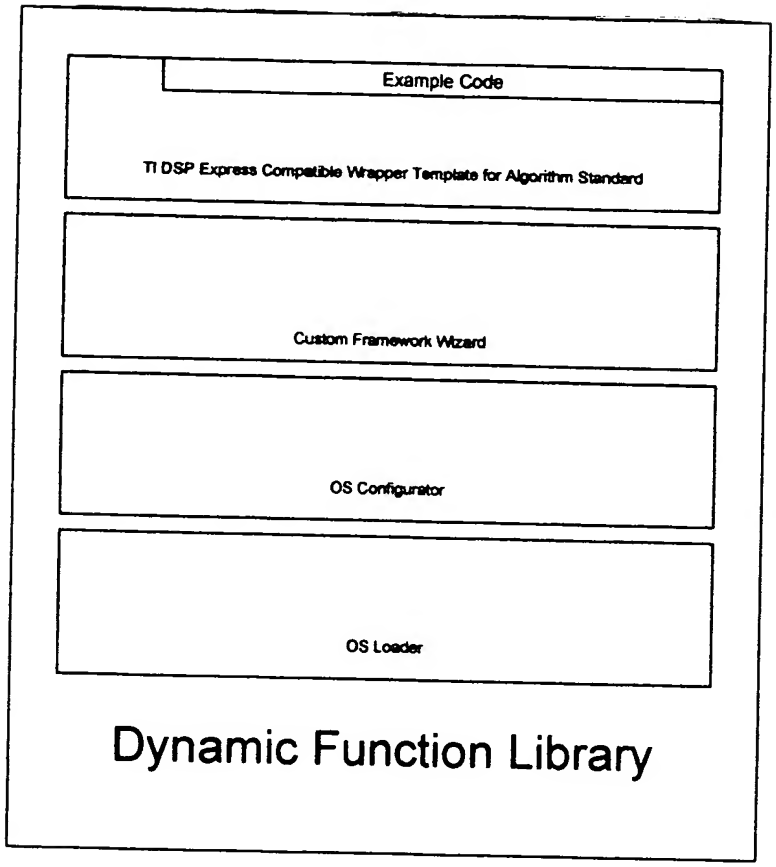

Example Code
TI DSP Express Compatible Wrapper Template for Algorithm Standard
Custom Framework Wizard
OS Configurator
OS Loader
Dynamic Function Library

FIG. 18

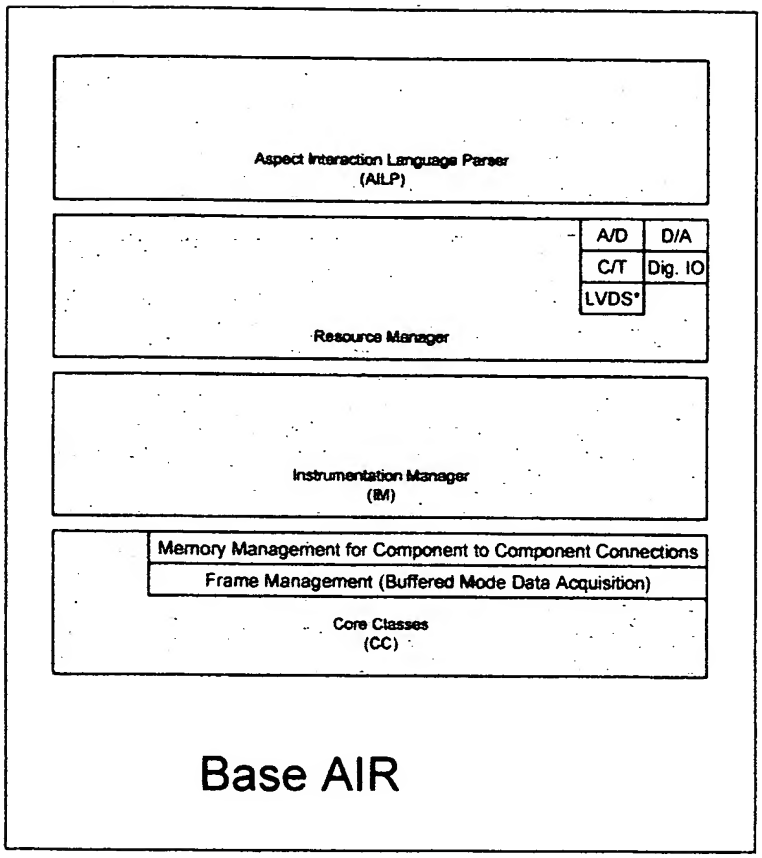

Aspect Interaction Language Parser
(AILP)
A/D
D/A
C/T
Dig. IO
LVDS*
Resource Manager
Instrumentation Manager
(IM)
Memory Management for Component to Component Connections
Frame Management (Buffered Mode Data Acquisition)
Core Classes
(CC)
Base AIR

FIG. 19

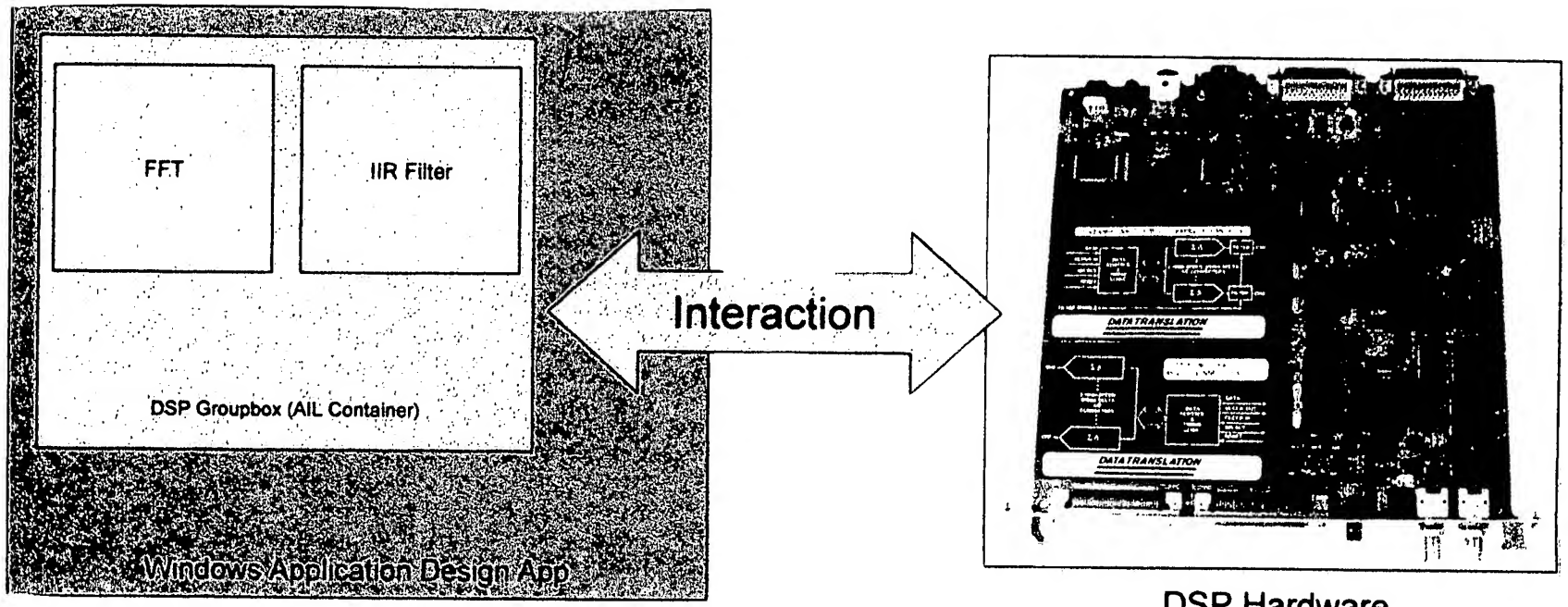

FFT
IIR Filter
DSP Groupbox (AIL Container)
Windows Application Design App
Interaction
DATA TRANSLATION
DATA TRANSLATION
DSP Hardware

FIG. 1

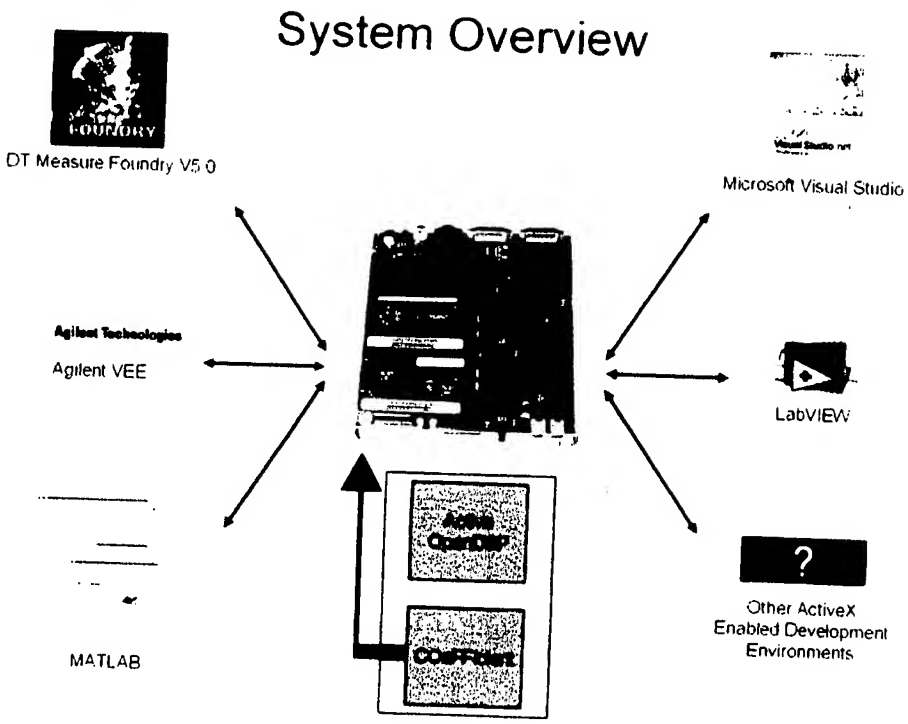

System Overview
DT Measure Foundry V5.0
Microsoft Visual Studio
Agilent Technologies
Agilent VEE
LabVIEW
?
Other ActiveX
Enabled Development
Environments
MATLAB

FIG. 2

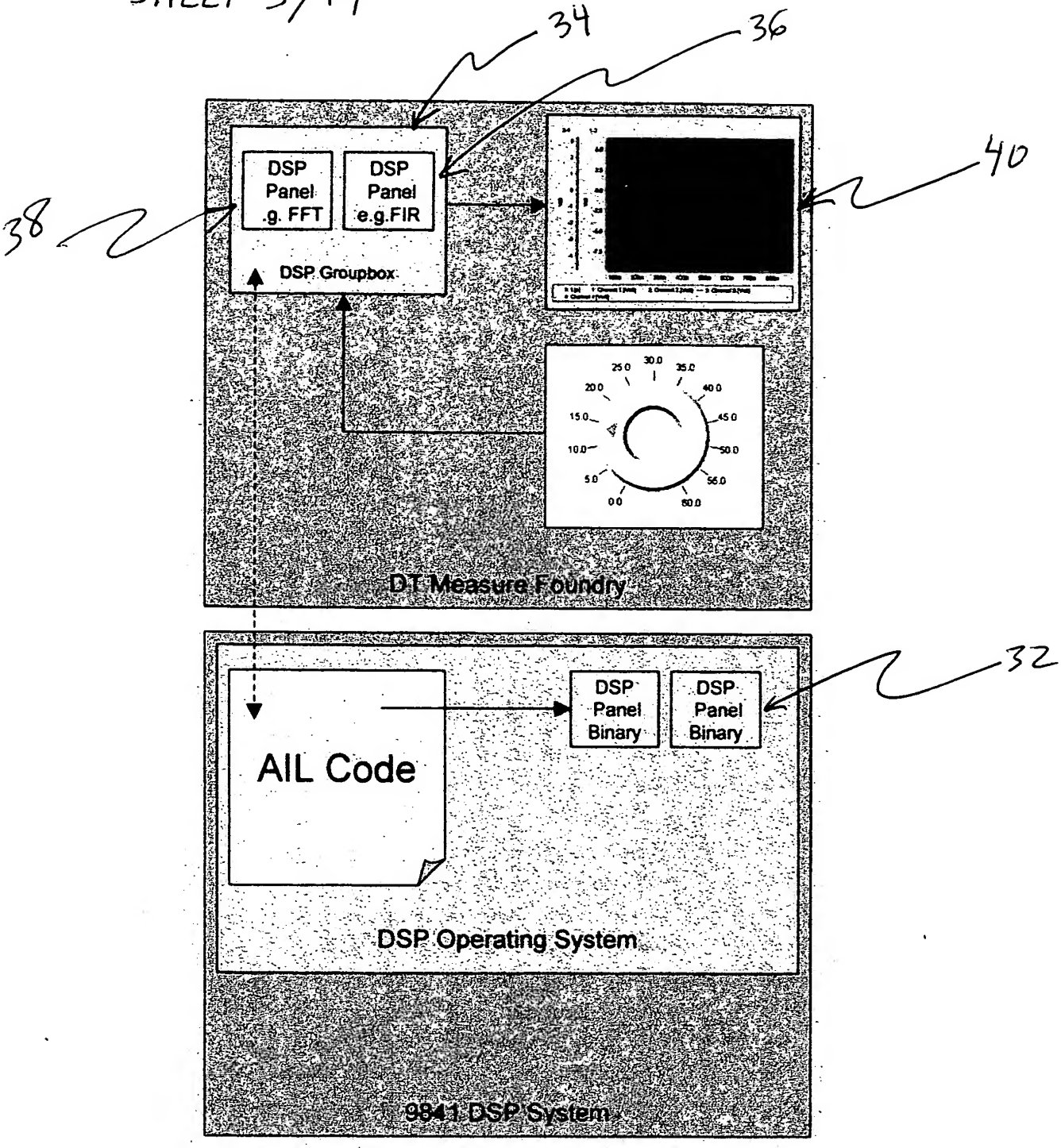

34
36
40
38
DSP Panel .g. FFT
DSP Panel e.g.FIR
DSP Groupbox
DT Measure Foundry
32
DSP Panel Binary
DSP Panel Binary
AIL Code
DSP Operating System
9841 DSP System

FIG. 3

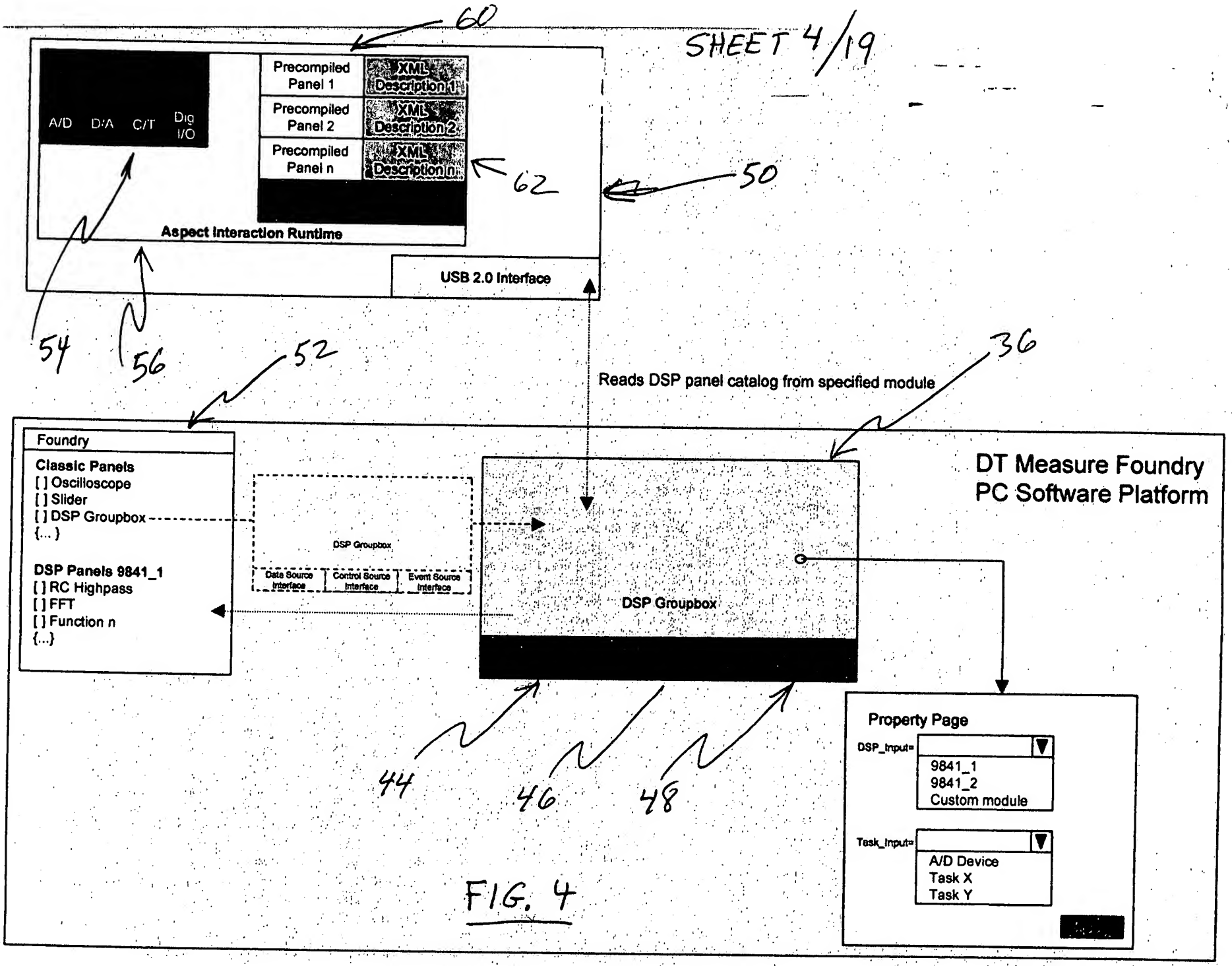
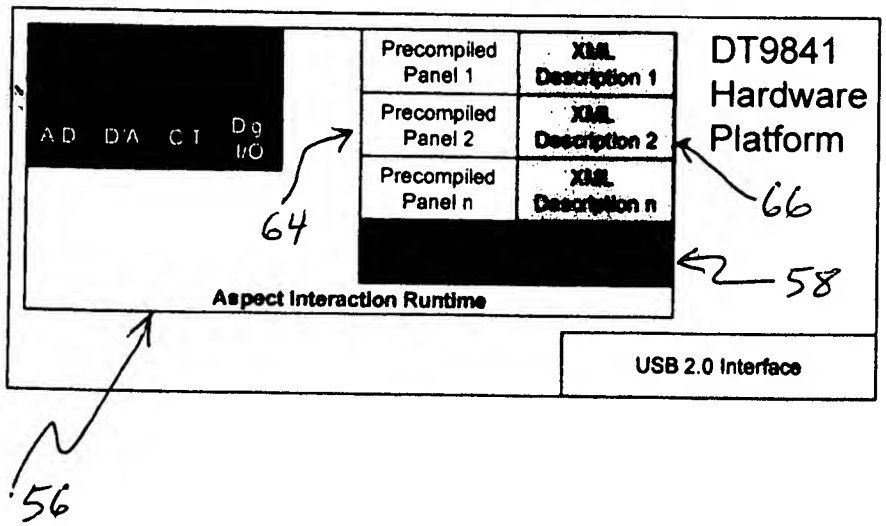

60
A/D
D/A
C/T
Dig I/O
Precompiled Panel 1
XML Description 1
Precompiled Panel 2
XML Description 2
Precompiled Panel n
XML Description n
62
50
Aspect Interaction Runtime
USB 2.0 Interface
54
56
52
36
Reads DSP panel catalog from specified module
Foundry
Classic Panels
[ ] Oscilloscope
[ ] Slider
[ ] DSP Groupbox
{... }
DSP Panels 9841_1
[ ] RC Highpass
[ ] FFT
[ ] Function n
{...}
DSP Groupbox
Data Source Interface
Control Source Interface
Event Source Interface
DSP Groupbox
DT Measure Foundry
PC Software Platform
Property Page
DSP_Input=
9841_1
9841_2
Custom module
Task_Input=
A/D Device
Task X
Task Y
44
46
48

FIG. 4



DT Measure Foundry
Start Procedure

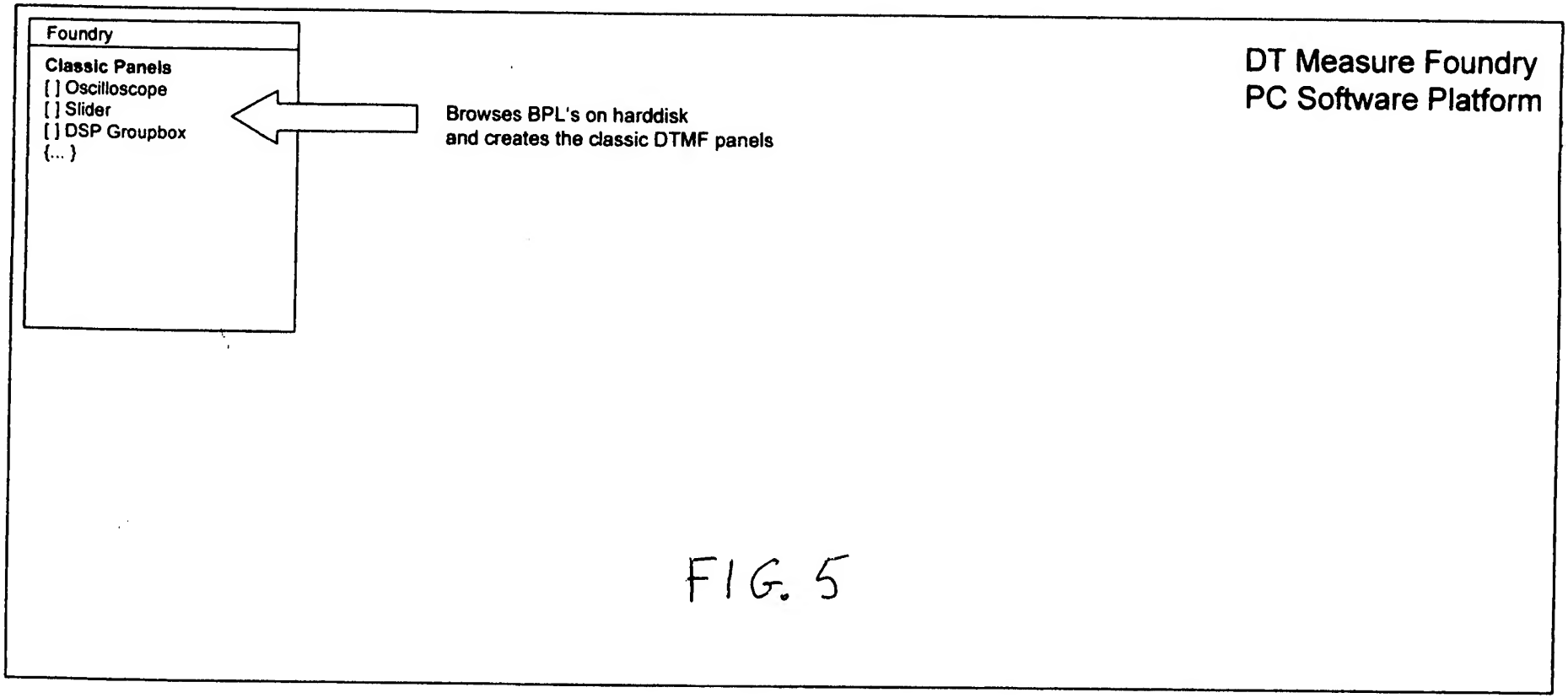
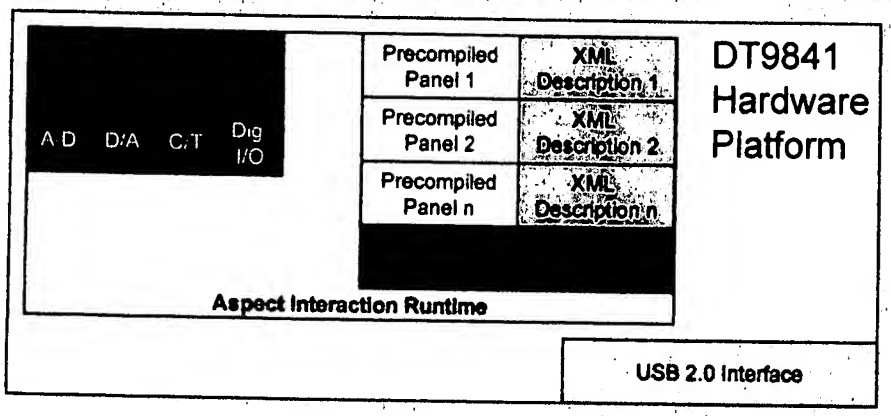


FIG. 5



Putting a DSP Function Panel on a DSP Groupbox

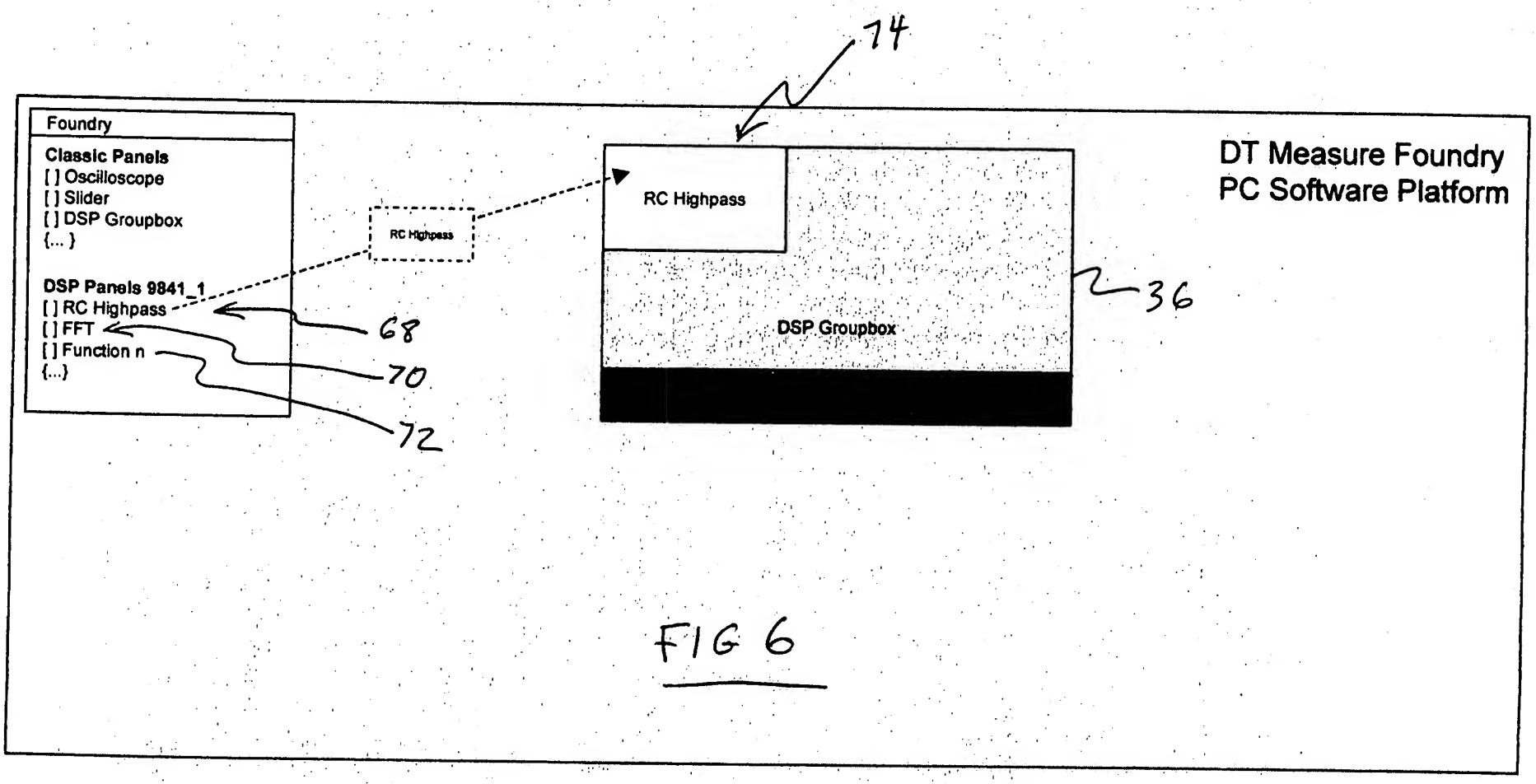
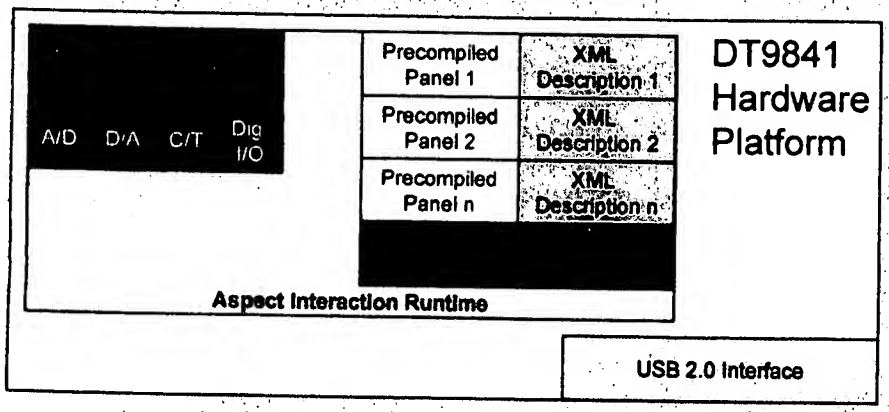
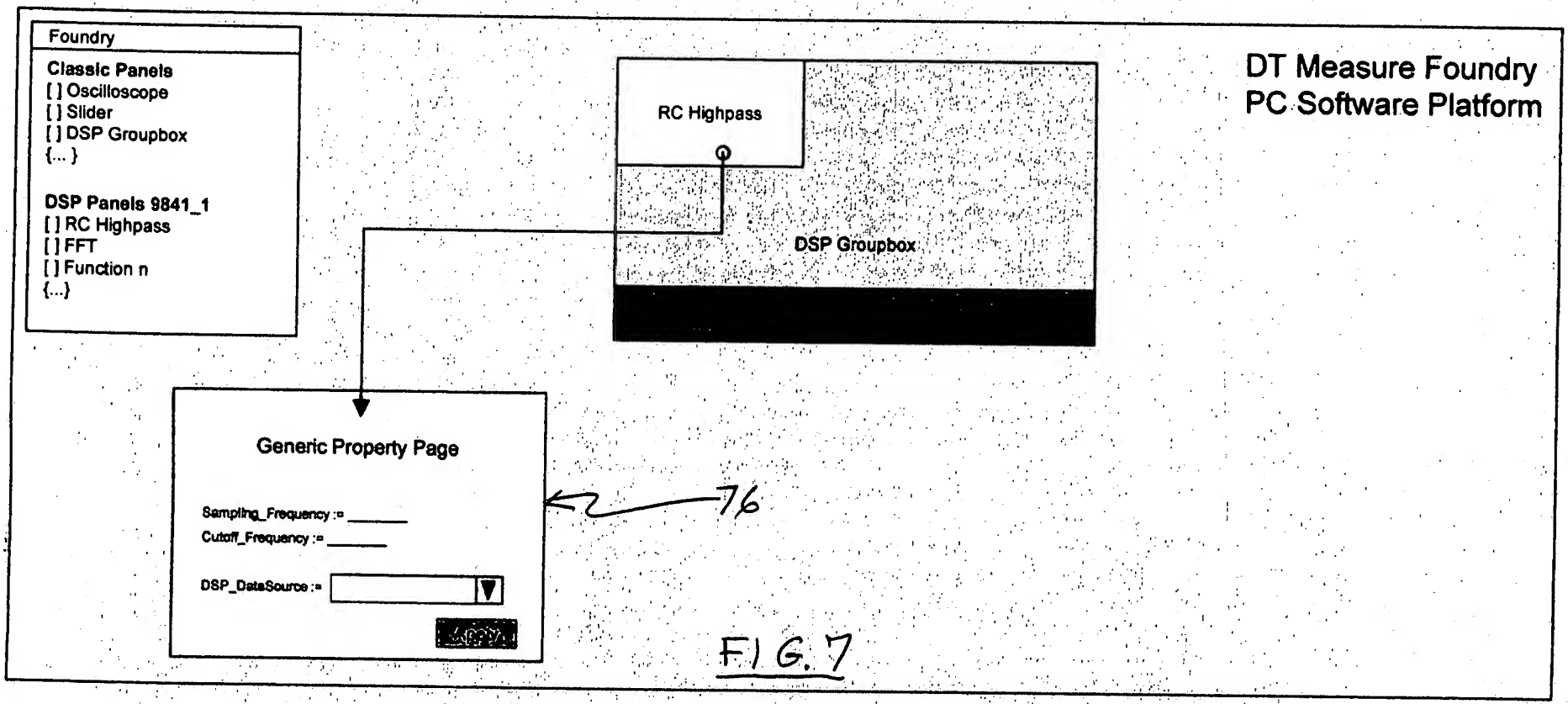


FIG 6

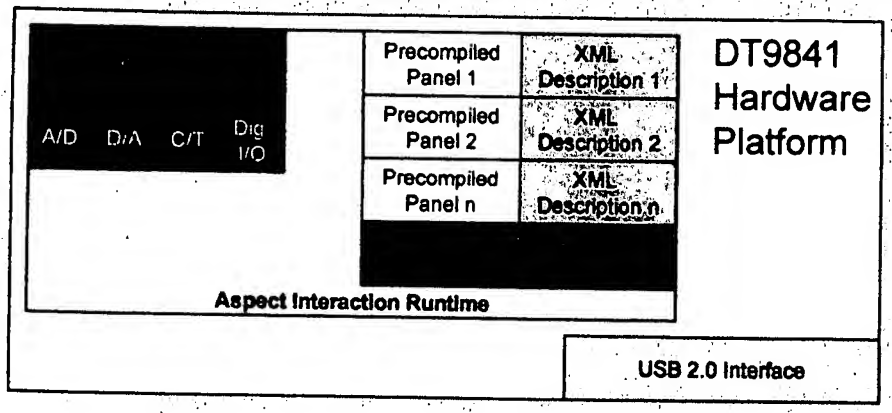


DT Measure Foundry
Open the generic
Property page



DT Measure Foundry
PC Software Platform

FIG. 7



DT Measure Foundry
Send the configuration
Data back to the
component

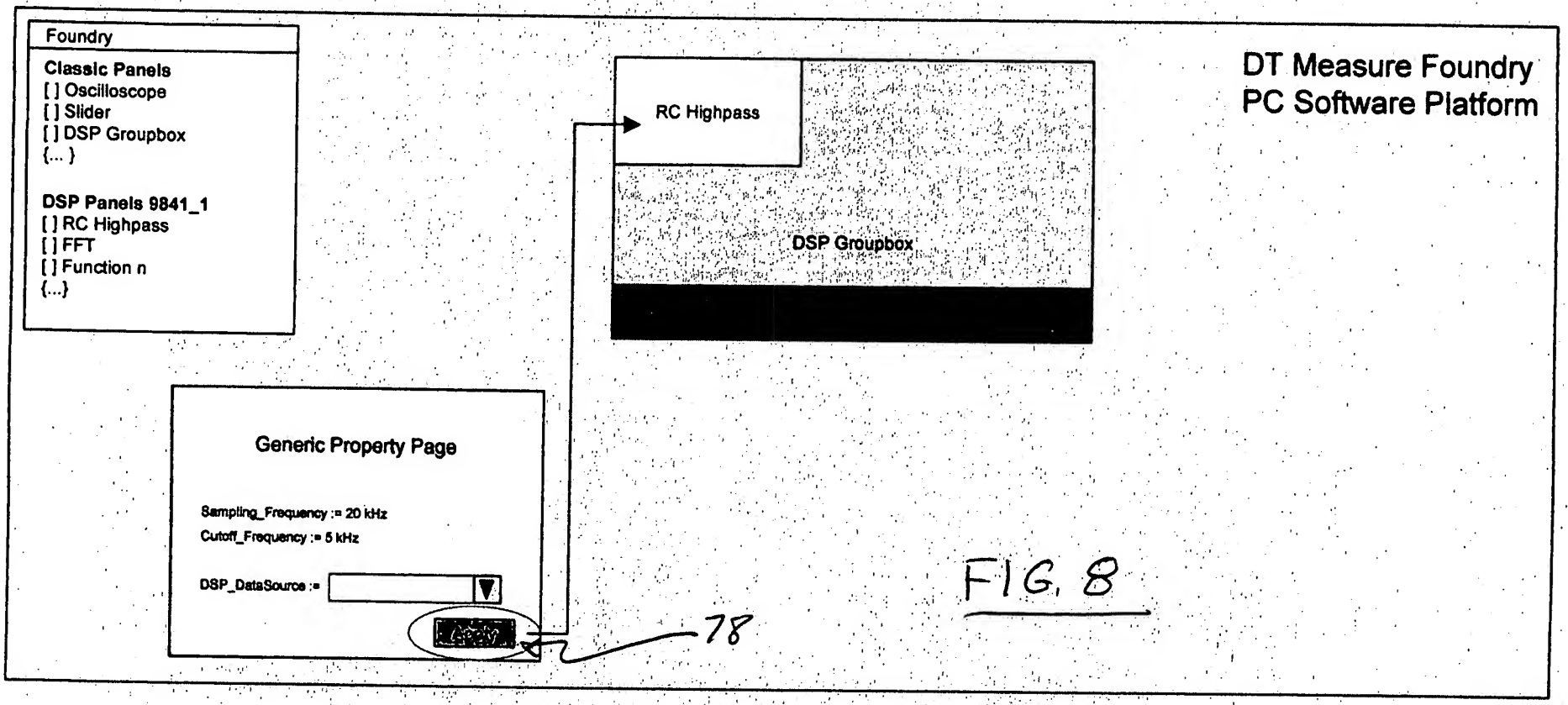
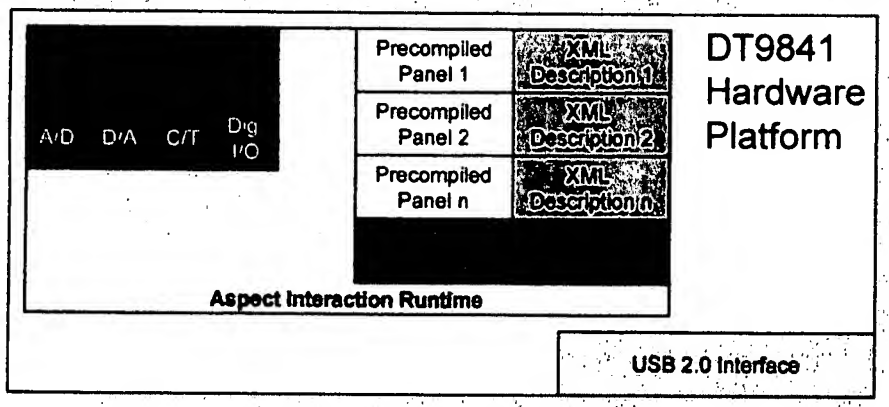


FIG. 8



DT Measure Foundry
Putting a DSP Function Panel

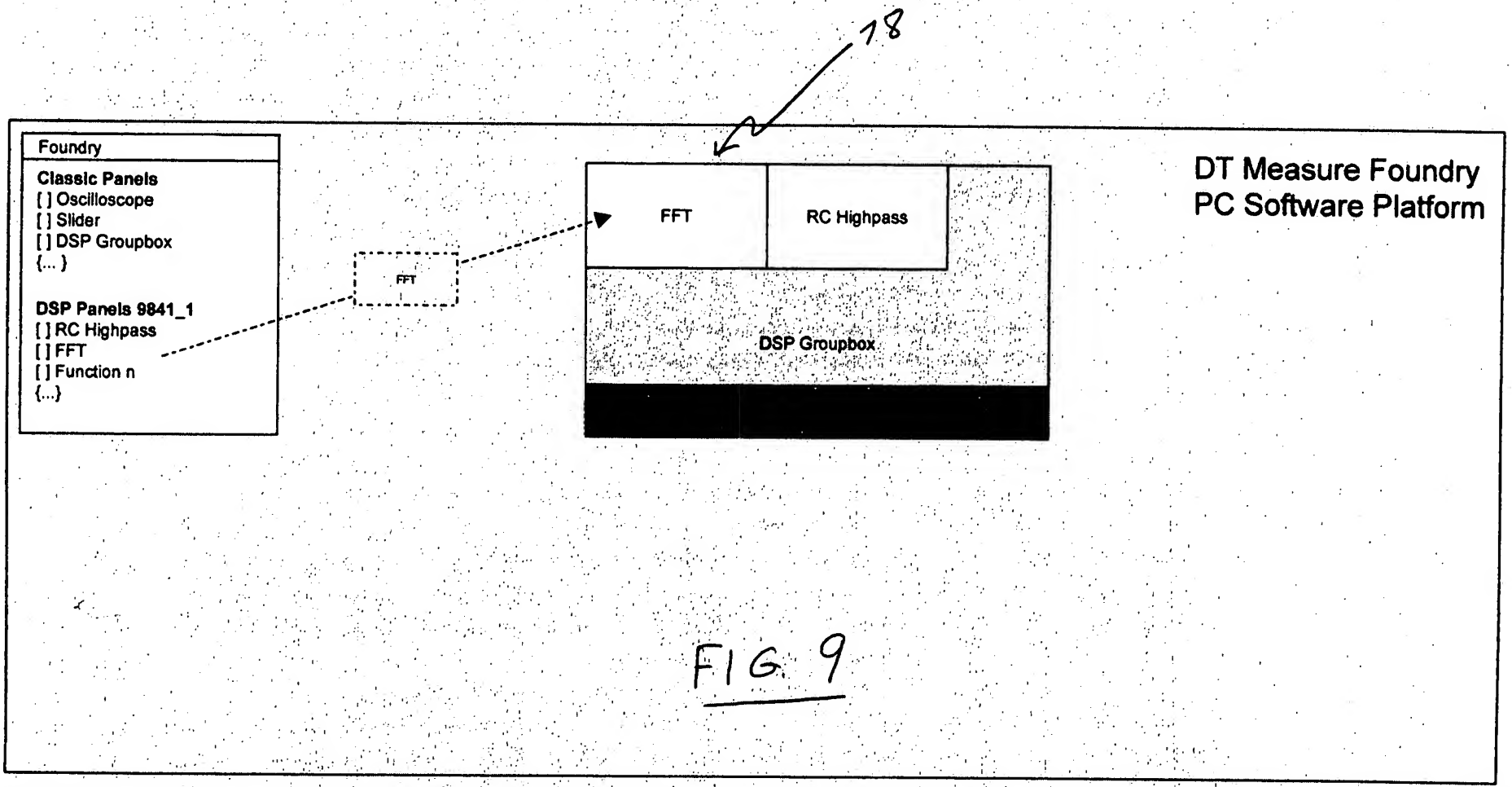
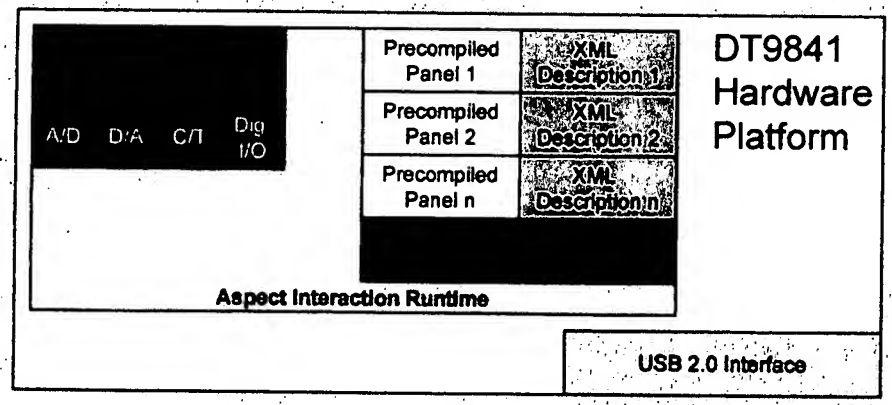


FIG. 9



DT Measure Foundry
Add Classic
Component and
Configure

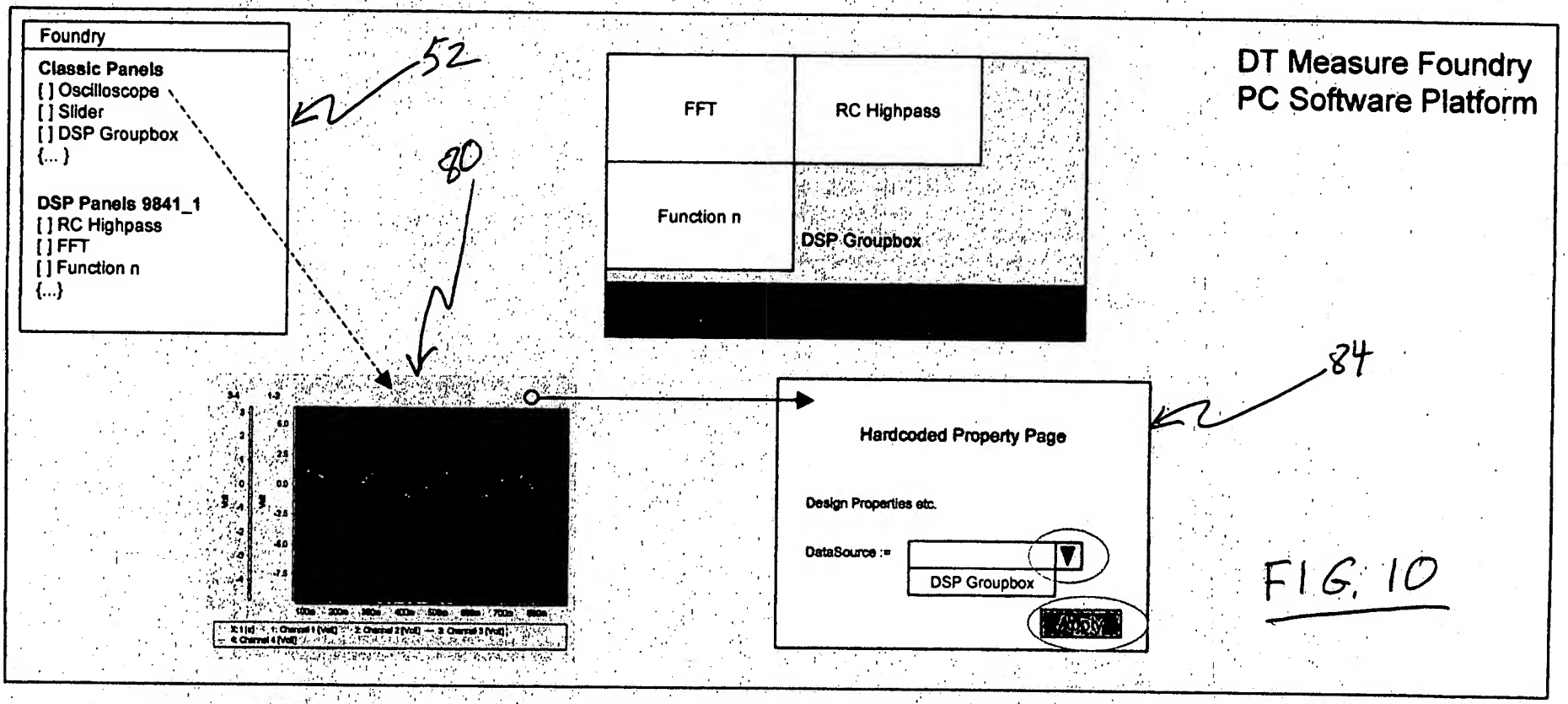
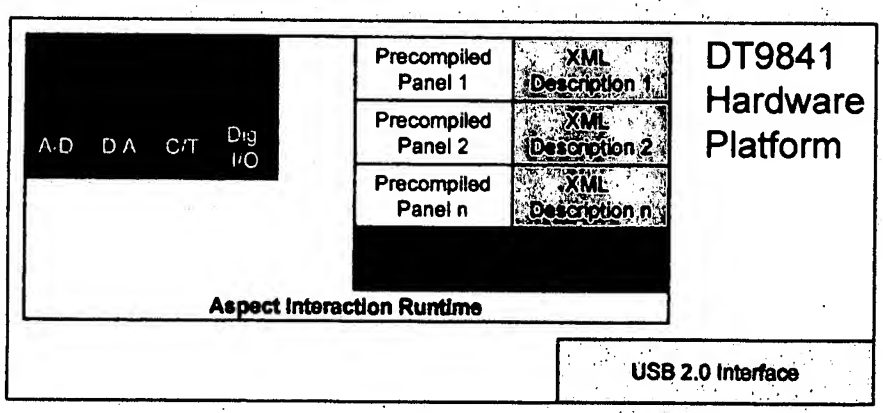


FIG. 10



DT Measure Foundry
Add Classic
Components

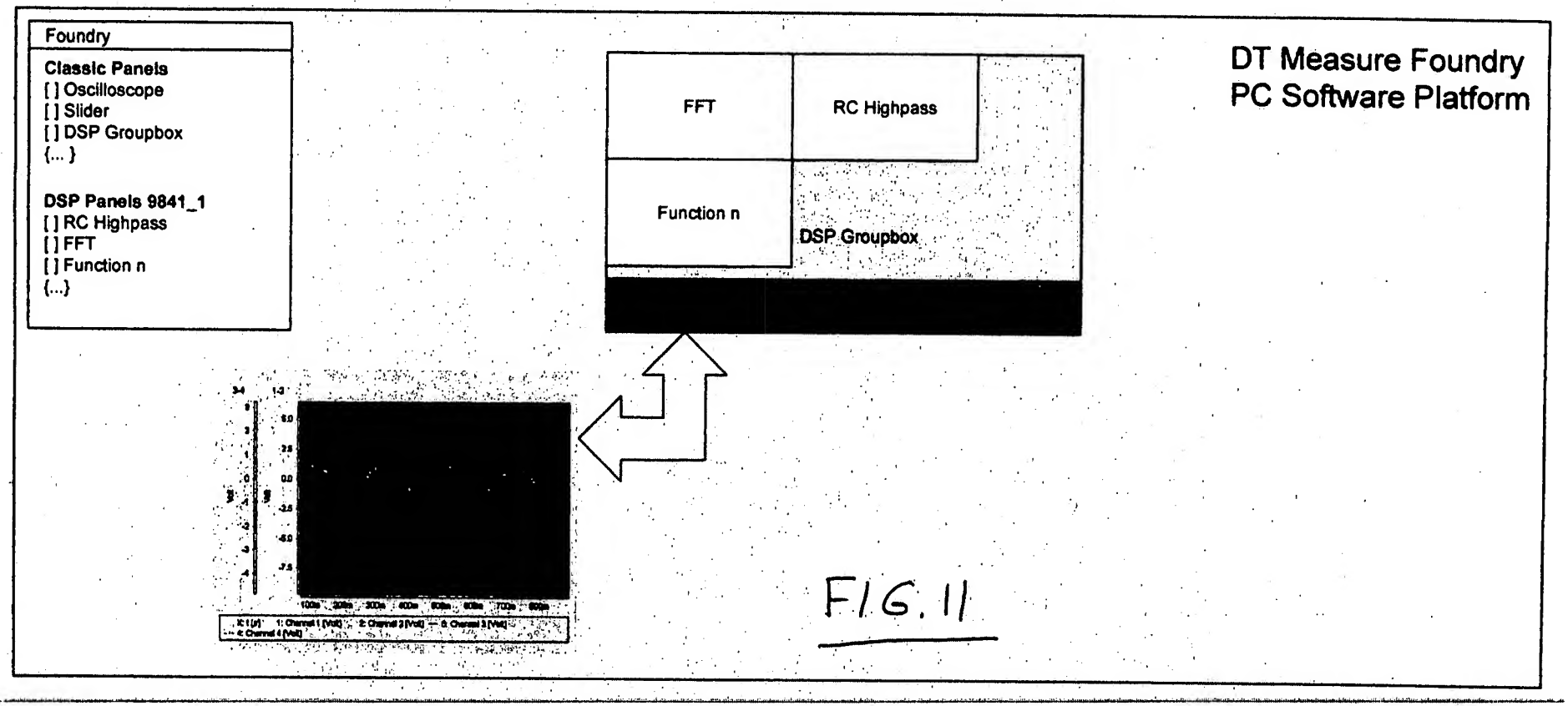


FIG. 11

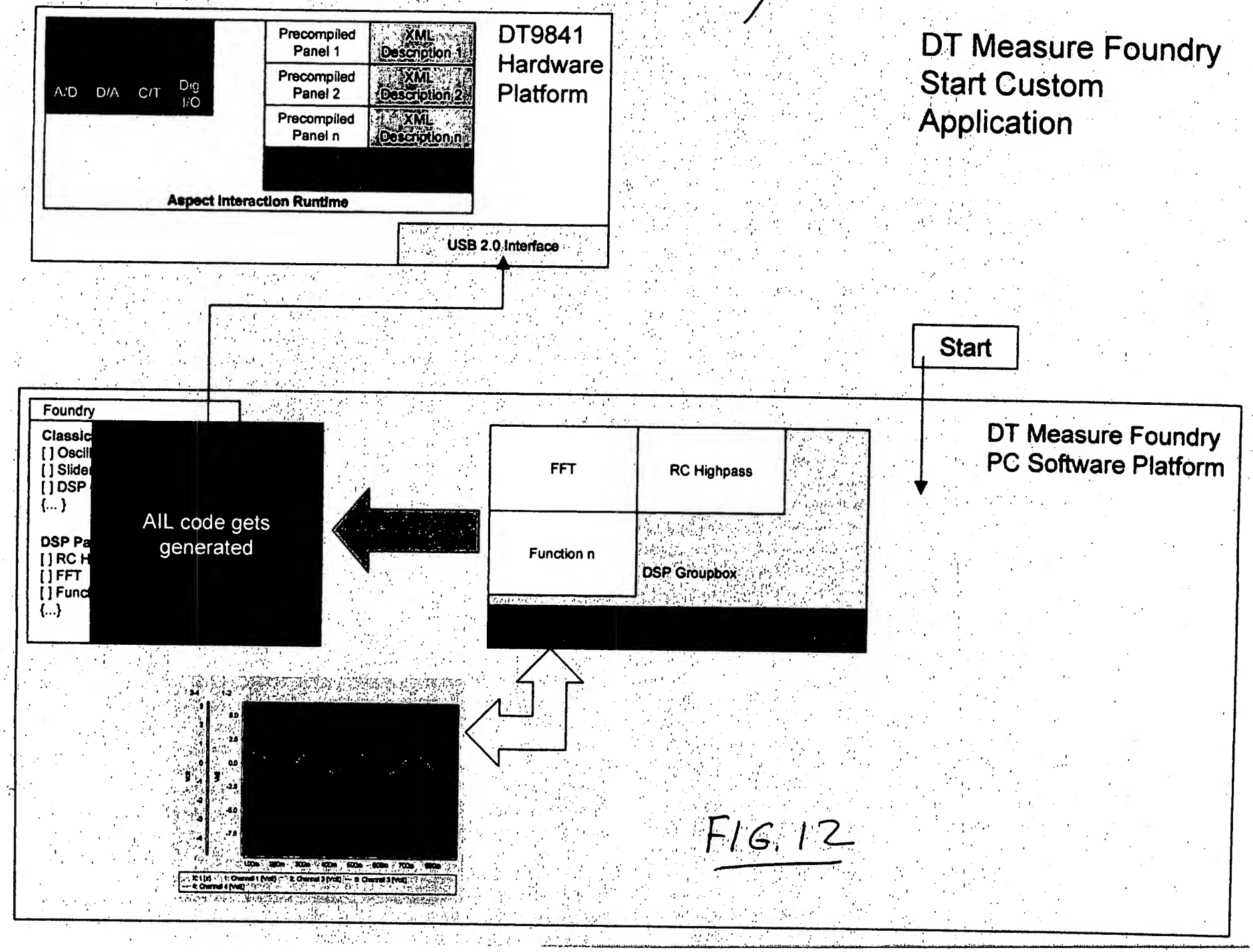
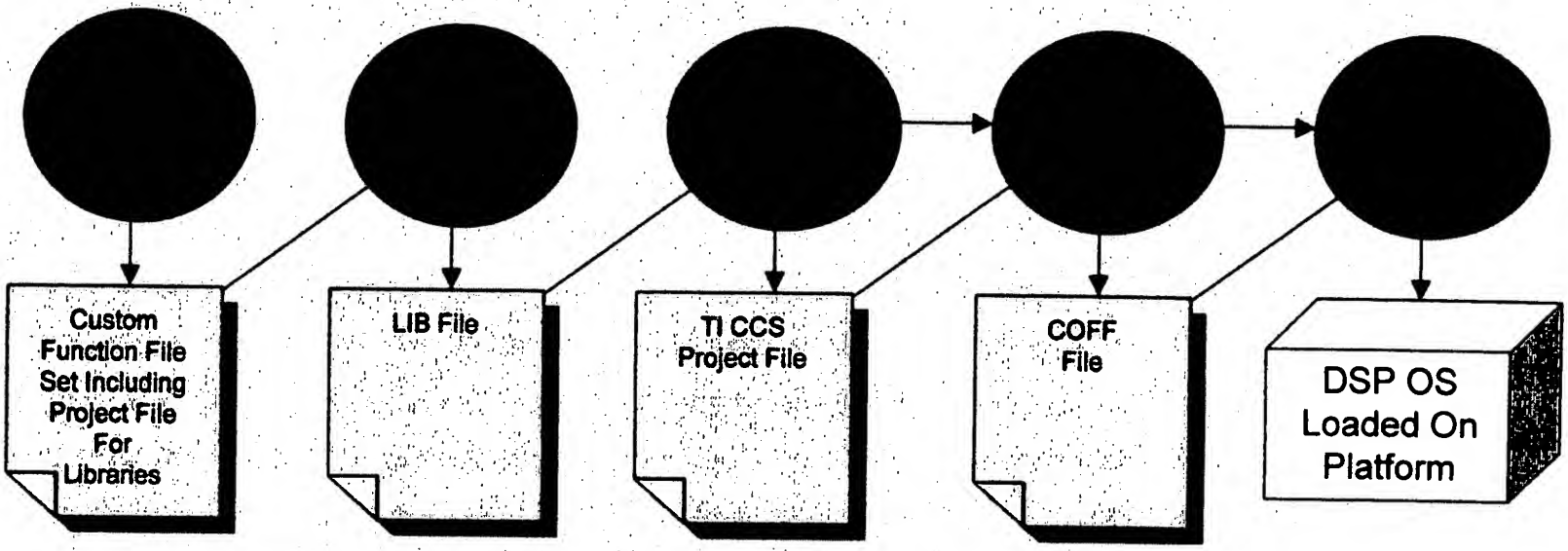

A/D
D/A
C/T
Dig I/O
Precompiled Panel 1
XML Description 1
Precompiled Panel 2
XML Description 2
Precompiled Panel n
XML Description n
Aspect Interaction Runtime
DT9841 Hardware Platform
USB 2.0 Interface
DT Measure Foundry Start Custom Application
Start
Foundry
AIL code gets generated
FFT
RC Highpass
Function n
DSP Groupbox
DT Measure Foundry PC Software Platform

FIG. 12

Overview



5 Steps are necessary to build a custom 9841 operating system

Each step can be done manually or by using wizards

FIG. 13

Create Custom DSP Panel Part I

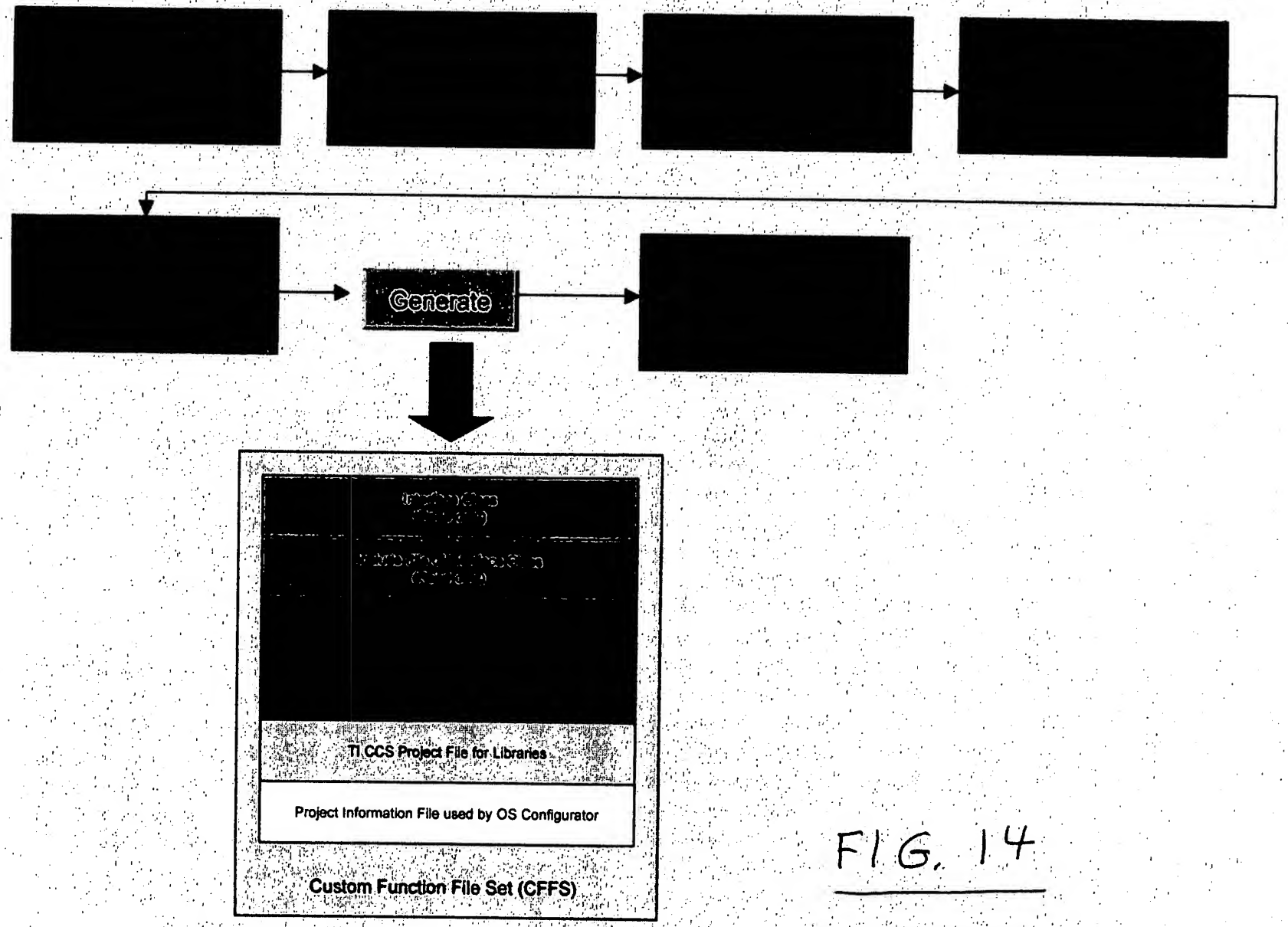


FIG. 14

Create Custom DSP Panel Part II

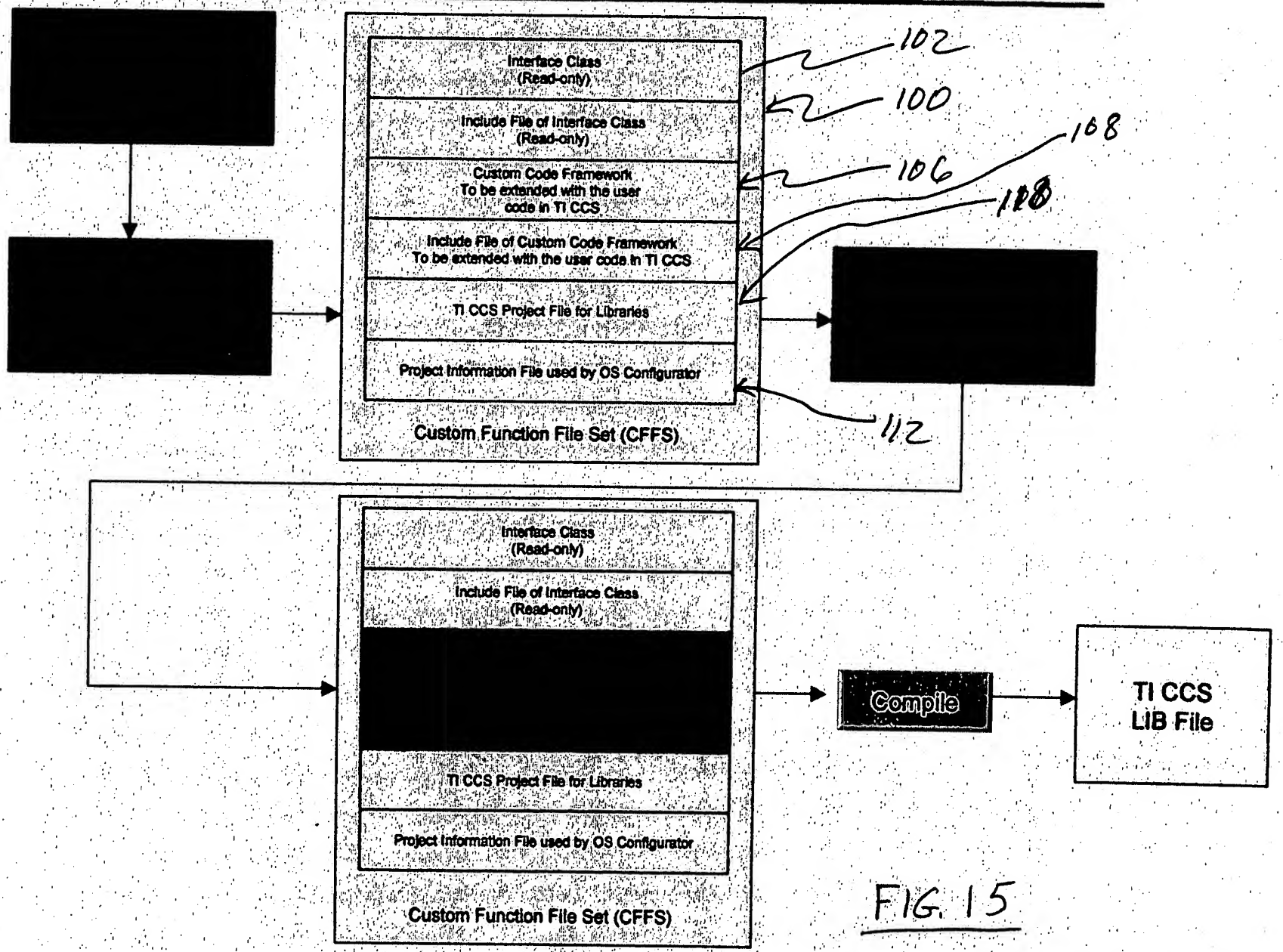


FIG. 15

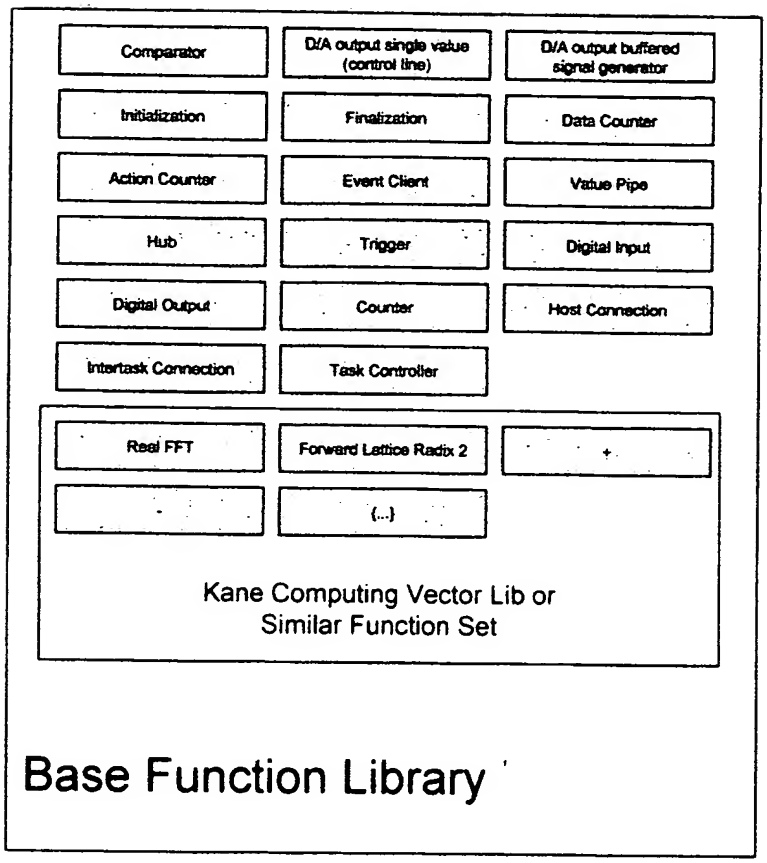

Comparator
D/A output single value (control line)
D/A output buffered signal generator
Initialization
Finalization
Data Counter
Action Counter
Event Client
Value Pipe
Hub
Trigger
Digital Input
Digital Output
Counter
Host Connection
Intertask Connection
Task Controller
Real FFT
Forward Lattice Radix 2
+
(...)
Kane Computing Vector Lib or Similar Function Set
Base Function Library

FIG. 16

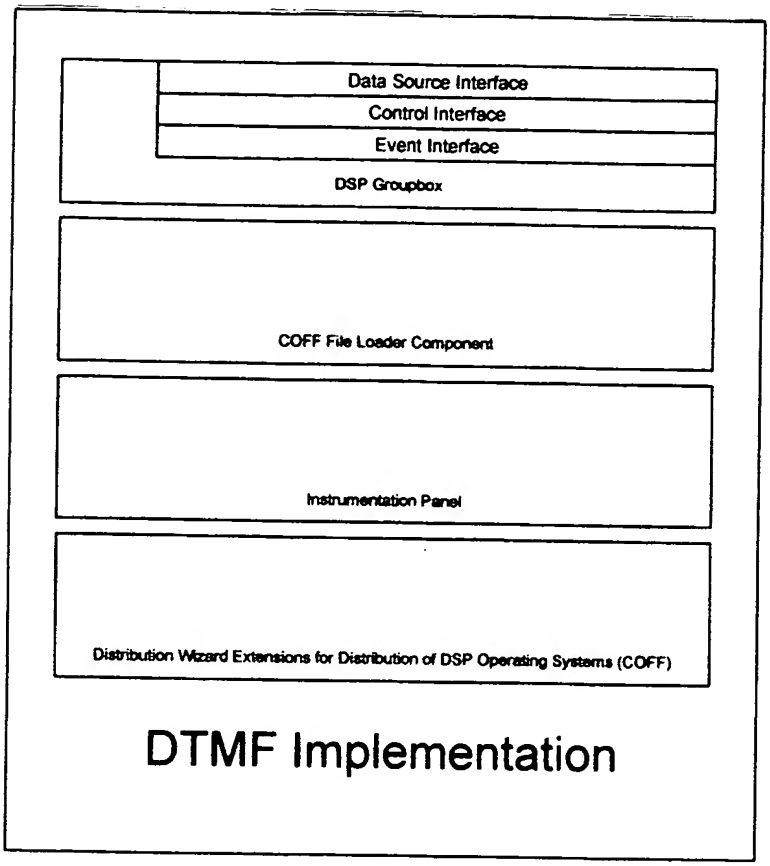

Data Source Interface
Control Interface
Event Interface
DSP Groupbox
COFF File Loader Component
Instrumentation Panel
Distribution Wizard Extensions for Distribution of DSP Operating Systems (COFF)
DTMF Implementation

FIG. 17

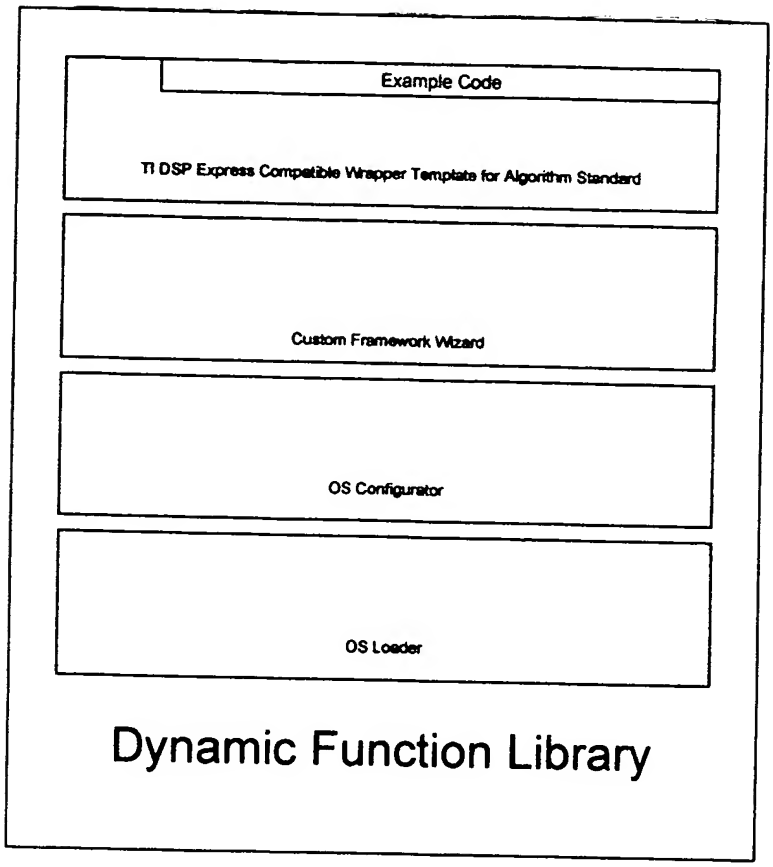

Example Code
TI DSP Express Compatible Wrapper Template for Algorithm Standard
Custom Framework Wizard
OS Configurator
OS Loader
Dynamic Function Library

FIG. 18

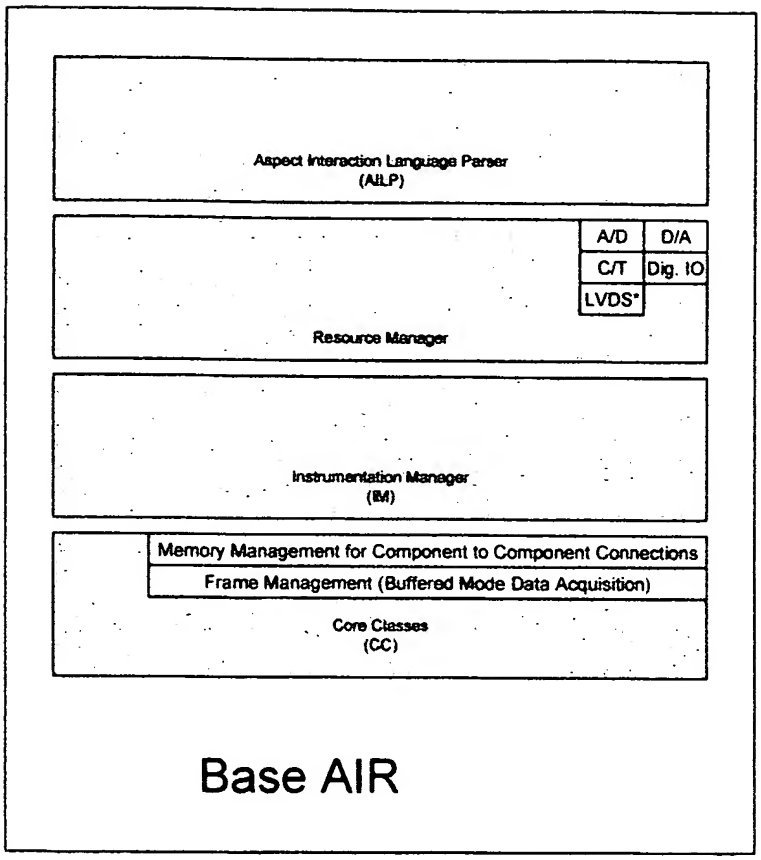

Aspect Interaction Language Parser
(AILP)
A/D
D/A
C/T
Dig. IO
LVDS*
Resource Manager
Instrumentation Manager
(IM)
Memory Management for Component to Component Connections
Frame Management (Buffered Mode Data Acquisition)
Core Classes
(CC)
Base AIR

FIG. 19